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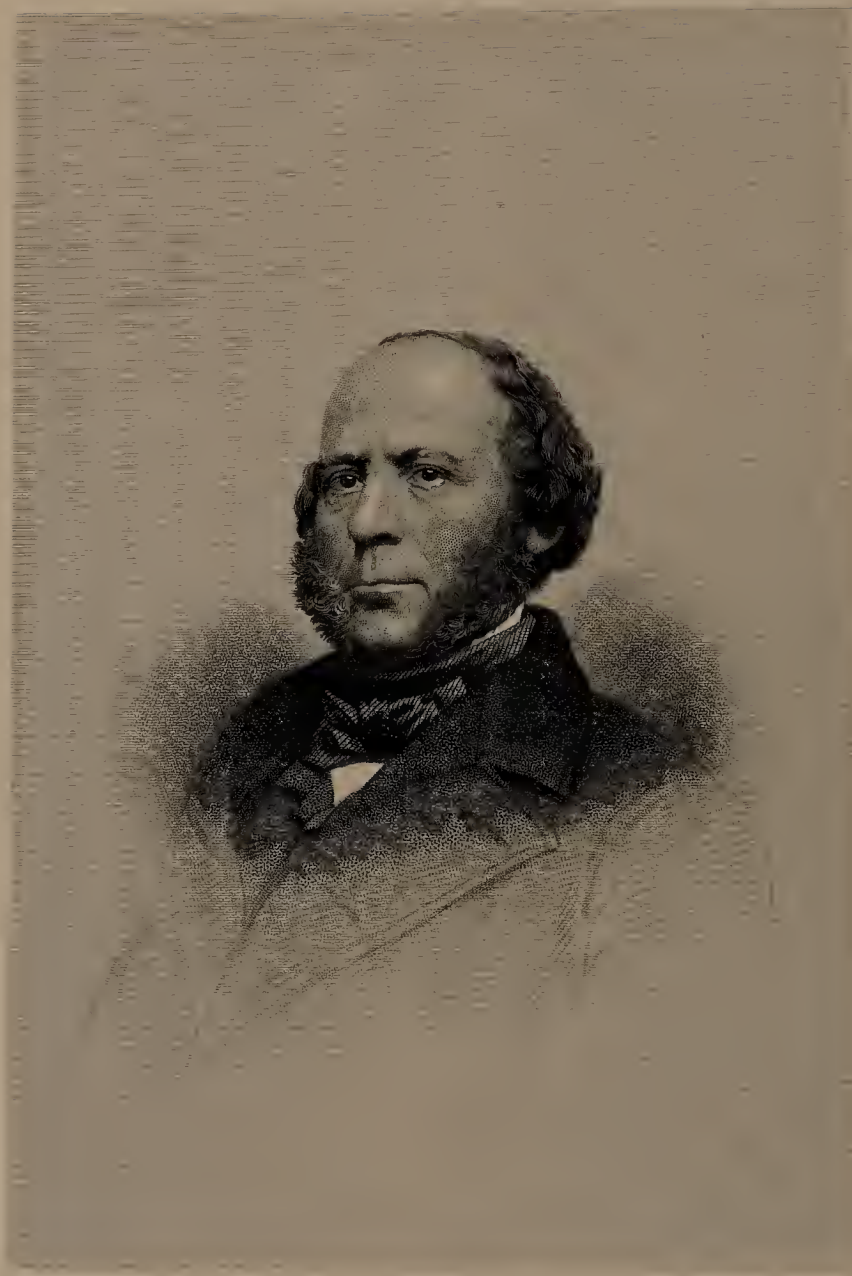
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A. Ericsson

APPLETONS'
ANNAL CYCLOPÆDIA
AND
REGISTER OF IMPORTANT EVENTS
OF THE YEAR
1889.

EMBRACING POLITICAL, MILITARY, AND ECCLESIASTICAL AFFAIRS; PUBLIC DOCUMENTS; BIOGRAPHY, STATISTICS, COMMERCE, FINANCE, LITERATURE, SCIENCE, AGRICULTURE, AND MECHANICAL INDUSTRY.

NEW SERIES, VOL. XIV.

WHOLE SERIES, VOL. XXIX.

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P R E F A C E .

THE year 1889, of which this volume attempts to give a succinct history, witnessed important political changes in three widely separated quarters of the globe. A new constitution was promulgated in Japan, which makes the government of that country a limited monarchy, with popular representation, so that the liberties of the people no longer depend upon the oath of the Mikado. In the United States, the control of the Executive branch of the Government and the national House of Representatives passed from one of the great political parties to the other, and four new States were admitted to the Union. In Brazil, the only imperial government in America was overthrown, and a republic took its place. The details of all these changes may be found in the appropriate articles. Unfortunately, not all revolutions are so bloodless, and Europe seems to be on the eve of a great war, perhaps of a general upheaval. One of the most significant of the symptoms is found in the fact that nearly every government on that continent is eagerly adopting the latest improvements in firearms and spending millions of dollars in altering old rifles or making new ones. The latest information on this subject, fully illustrated, may be found in the article on "Military Rifles," by Capt. Philip Reade, of the United States Army. The new navy that we are building for our own defense was described and illustrated in the "Annual Cyclopædia" for 1888; and that article is supplemented by one in the present volume, contributed by Lieut. Arthur P. Nazro, U. S. N., which contains a full description of the navy, brought down to date. The affairs of the new States, both in the last days of their Territorial condition and in the first of their Statehood, will prove interesting to every American citizen who takes pride in the growth of his country; and the dramatic story of how a new Territory was peopled in an hour, to the sound of the bugle, may be read under "Oklahoma." Closely related to this is the subject of "Irrigation," which is fully treated by Ernest Ingersoll, who is very familiar with our great Western plains, where only water is needed to make the desert blossom as the rose. The persistent effort to secure universal temperance through political means is another significant movement, the progress of which may be traced by means of the subheads "Prohibition," "Local Option," and "High License" in the various articles on the States and Territories. And another moral question that forms a subject of legislation is treated in the article on "Divorce." The growth of our cities is recorded in a continuation of a series of articles—"Cities, American, Recent Growth of"—which was begun in the volume for 1886. Forty-four

cities are treated in the present article, and the subject will be continued next year. Most of these are written by local authorities.

The greatest feat of recent times in the way of exploration is probably Stanley's march across central Africa, which is fully described, largely in his own language, in the articles "Stanley" and "Geographical Progress and Discovery," with a portrait of the explorer, a map of Africa, and other illustrations. The progress of peaceful industry is indicated in the articles "Fraternal Congress," "International Congress," "Marine Congress," "Maritime Exhibition," and "Paris Exposition," the last of which is illustrated with a colored chart; while great movements of capital and resulting legislation are set forth to some extent in the articles "Investments, English, in the United States," and "Trust." Sources of material wealth are described in "Apatite," "Cattle, Improved Breeds of," "Cotton-Seed Products," and several paragraphs on phosphate deposits in State articles; while Prof. John D. Quackenbos describes a new and valuable species of trout, with illustrations. The article on "Elections," in the volume for 1887, which described the various forms of balloting, including the Australian and other systems, is supplemented in the present volume by an exhaustive one on "Registry Laws," and in connection with that the reader should look at the State articles for a record of recent enactments in ballot reform. The subject of executions by electricity is treated in the article on New York State; and a great many curious and useful suggestions as to subjects of recent legislation may be found in the lists of bills passed by the State legislatures, as well as in the article on "Congress." The disasters of the year are briefly recounted under that title, and two of the greatest—the Johnstown flood and the epidemic of influenza—are treated in special articles. On the other hand, the munificent provision made for sufferers by a disaster of the last generation is described under the title "Soldiers' Homes." Interesting discoveries regarding ancient peoples in one of the oldest and one of the newest countries on the globe are set forth in "Archæology" and "Cave-Drawings."

Among our regular articles, Dr. William J. Youmans, as usual, furnishes "Chemistry," "Meteorology," "Mineralogy," and "Physiology"; Mr. James P. Carey, of the "Journal of Commerce," writes the "Financial Review"; Mr. William C. Winlock, of the Smithsonian Institution, gives us "Astronomical Progress and Discovery"; Mr. Henry Dalby, of the Montreal "Star," contributes Canadian articles; Rev. Dr. Spencer writes of the Protestant Episcopal Church, and Prof. Egan of the Roman Catholic Church; and John D. Champlin, editor of the "Cyclopedia of Painters and Paintings," reviews the year's progress in the fine arts. From more distant quarters, we have an article from Prof. Brown on New Zealand, and one from Consul Hastings on Hawaii. To our list of regular titles we add this year "Physics," by Arthur E. Bostwick, Ph. D.

The eminent living men of whom we present sketches and portraits are: Pope Leo XIII, Henry M. Stanley, the deposed Emperor of Brazil and his successor President Fonseca, the new Speaker of the House of Representatives, Hon. Thomas B. Reed, and the members of President Harrison's Cabinet.

Among the eminent dead of the year here sketched and pictured are Robert Browning, John Ericsson, John Bright, Jefferson Davis, and Simon Cameron and John P. Usher, the last surviving members of President Lincoln's Cabinet. The article on Robert Browning presents a fine analysis of his style and a history of his works; that on Jefferson Davis includes, in rapid outline, the story of the Southern Confederacy and the civil war. The obituary sketches are very numerous and reasonably full. Among the noteworthy ones are those of the eminent lawyers S. L. M. Barlow and Leonard Swett, the actors John Gilbert and George Fawcett Rowe, the legislators Samuel S. Cox, George H. Pendleton, and Edward H. Rollins, the soldiers John F. Hartranft, Daniel H. Hill, and Henry J. Hunt, the journalists Samuel Wilkeson, Henry W. Grady, and Charles S. Collins, the educators Theodore D. Woolsey and James Ryland Kendrick, the physicians D. W. Bliss and Joseph E. Turner, the *littérateurs* S. Austin Allibone, David D. Lloyd, and William D. O'Connor, the jurist Stanley Matthews, the artist Robert W. Weir, the former mistresses of the White House Julia G. Tyler and Lucy W. Hayes, and the eminent women Mary L. Booth, Elizabeth C. Kinney, and Maria Mitchell. The illustrations include, besides those already mentioned, a large colored map of the eastern provinces of Canada, a full-page view of the newly discovered Mountains of the Moon, the Johnstown disaster, the first and last of the "Great Eastern," the St. Mary's Canal, Dalhousie College in Halifax, the new State-House of Georgia, the Parliament House in Toronto, a map of the newly surveyed Selkirk range, the Chamber of Commerce in Cincinnati, Canterbury College in New Zealand, and portraits of the young King and Queen of Portugal.

The illustrations were drawn by F. A. Carter, Edward L. Chichester, Clifton Johnson, William Kurtz, Jacques Reich, and A. C. Warren.

NEW YORK, *April 2, 1890.*

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THE
ANNUAL CYCLOPÆDIA.

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ABYSSINIA, a monarchy in eastern Africa. The area, exclusive of conquered territories of the Somalis and Gallas, is about 175,000 square miles; the population is not more than 3,500,000. The ruler bears the title of Negus Negusti, or "King of Kings." The inhabitants are Coptic Christians.

War with the Dervishes.—The Soudanese dervishes, or Mahdists, invaded the province of Amhara in 1885, and burned all the churches and houses, carrying the people away into slavery. In 1886 they devastated the Tshelga province, took many captives, massacred the monks of Mahebera, and burned the monastery. In 1887 the Negus Johannis defeated the dervishes; but in 1888, while he was contesting the advance of the Italians from Massowah to a summer station on the border of the Abyssinian plateau, he was called away by a new raid of the Mohammedans, who defeated the King of Godjam, and carried off thousands of his subjects to be sold into slavery. King Johannis gathered his warriors to defend the western country. King Menelek of Shoa, who had proclaimed war against his sovereign in order to supplant him as Negus, remained idle, with his larger army encamped in a strong place on the bank of the Abai, a confluent of the Blue Nile, dividing Shoa and Tigreh, while Johannis contended with unequal forces against the fanatical invaders who made western Abyssinia a desert, put many thousands to the sword, and sent the flower of the nobility and of the people as slaves to Mecca or Khartoum. The Abyssinians fought bravely, but were defeated in the principal battles. On March 10, 1889, the Negus attacked the dervishes' stronghold at Metemneh, on the frontier of the Soudan, but was driven back. The Negus himself was mortally wounded. On the 12th the dervishes followed up their success, attacked the King's camp, and completely routed his army. Ras Arca and Ras Ailu fell in the engagement, while Ras Michael fled with the remnant of his command to Magdala, and Ras Aloula retreated to Tigreh.

The Contest for the Throne.—When the Italians found they could not obtain from King John the footing in Abyssinia that they desired, they entered into negotiations with King Menelek of Shoa, whom they supplied with firearms in return for promises to give them a part of

Bogos for colonization and to concede to Italy commercial advantages over other European nations. The King's nephew Debeb, a son of the widow of Theodoros by her marriage with Ras Salasiem, they also encouraged in his aspirations to the supreme power, making use of him as an ally in the campaign against Ras Aloula until he went over to the enemy and turned against them the weapons they had furnished. Menelek assembled an army of 130,000 men on the border of Shoa to wage war against Johannis. The King marched to the south with the intention of forcing his rebellious vassal and rival into submission, but finding the latter intrenched in an impregnable position, he avoided a battle by turning aside with his army, which was already partly demoralized and suffering from want of food, and, marching to the northwest, began the campaign against the dervishes. When King John fell, Menelek proclaimed himself Negus Negusti, and after securing the adhesion of Ras Michael and the King of Godjam, advanced into Tigreh to try conclusions with Degiaie Mangaseia, a Shoa chief who in 1888 had fought the insurgent Wollo-Gallas; King John's nephew and chosen heir, whose cause had been espoused by Ras Aloula. Several fights between the partisans of the rival pretenders took place before the rainy season. Debeb entered Tigreh from the north with his well-armed troops to dispute the succession. Mangaseia and Aloula invited him to an interview at Makalle, and when he came they treacherously made him a prisoner. The three Abyssinian abounas—Petros of Asmara, Lucas of Godjam, and Matheos of Shoa—recognized Menelek as Negus, and most of the chiefs south of the Takaze gave him their allegiance. Mangaseia's money did not long hold out, and when he was deserted by most of his men except Aloula's force, he entered into negotiations with the Italians. Before September all Abyssinia had submitted to Menelek's rule, with the exception of a small portion of Tigreh. King Menelek was the son of King Haelou of Shoa by a slave-woman, and was selected by his father to succeed him. The new ruler of Abyssinia has had men of ability among his generals and counselors, most of whom are hostile to Europeans. But such is not the character of Menelek. He is well disposed to white people, except mission-

aries, and is an admirer of European productions, especially mechanical inventions. In September the new King was crowned at Adua, the sacred city of Abyssinia, by Bishop Matheos.

Italian Annexations.—Although the auspicious moment had arrived for carrying out the carefully arranged plans of the military authorities to occupy the cool and healthful plains near Massowah, which would afford a summering-place where the troops could escape the fatal climatic conditions of the coast, and also a gateway for spreading Italian influence into Abyssinia, yet the Italian Cabinet was at first unwilling to assent to Crispi's proposal to occupy the coveted positions in the highlands, because the Premier had not long before promised that no more money should be sunk in African undertakings. The Minister of War reckoned the cost of occupying Keren and Asmara with two regiments at 6,000,000 lire, while for an extended occupation of Bogos 20,000,000 lire would be required. The Italians have had to support an expense of 20,000,000 lire per annum and the dislocation of 7,000 or 8,000 of the best of their troops to retain possession of Massowah and a triangle of coast territory which is of no practical benefit, since the blockade has stopped all trade with Abyssinia. Therefore, they were driven to make a choice between going forward or retiring from Africa. Moreover, consideration of the health of the troops was a pressing question. The forces in and near Massowah in the spring of 1889 consisted of 7,800 Italian soldiers and 4,160 Bashi-Bazouks, or native irregulars, without counting the bands of Abyssinians in Italian pay. The Italians made an unsuccessful attempt in 1888 to seize Keren, which is on the edge of the salubrious table-land. Subsequently they purchased the allegiance of Barambaras Kafel, an Abyssinian chief, who collected 2,000 men, and by means of 600 breach-loading rifles tyrannized over the entire plateau of Bogos. When ordered to restrain his men from plundering, Kafel invited Ras Aloula to join him in expelling the Italians. The latter knew of the treacherous scheme, and while Aloula was on the march with 8,000 men, laid their plans to frustrate it before he arrived. Gen. Baldissera, governor of Massowah, sent a detachment of scouts and Bashi-Bazouks with a mountain battery under Major Dimajo, who, with the co-operation of Debeb's army of 1,500 men, surrounded and surprised the faithless ally, arrested him and five of his principal chiefs, disarmed his freebooting band, and on June 2, 1889, took formal possession of Keren, hoisting the Italian flag over the fort. Senahit, another important place on the Abyssinian frontier, was occupied subsequently. On Aug. 4 Gen. Baldissera took possession of Asmara, which he fortified. Ras Aloula attempted to oppose the Italian advance, but was put to flight by Major Dimajo at the head of a detachment of chasseurs and irregulars. Debeb had held the district since early spring, having again entered the Italian service after deserting to the enemy with arms and baggage the year before, giving his infant brother and uncle into their hands as hostages, and proving his fidelity by defeating the Abyssinian governor of Asmara. Debeb's brother, Ligg Abraham, was taken to Italy to

be educated in the International College at Turin.

Asmara is the place that Ras Aloula chose for his residence when he advanced from Zazega to oppose the Italian occupation of Keren. It was formerly a wretched village, but is well situated in an undulating plateau, 2,327 metres above the sea, 90 kilometres from Massowah, on the road that passes through Mukulu, Dogali, Sahati, Ailet, Sabarguma, Baresa, and Ginda, and is near the sources of the Mareb and other streams. In conjunction with Keren it commands the northern border of Tigreh, and with Zazegra controls all the routes between northern Abyssinia and the sea. The neighboring valley of Anseba, through which passes the road to Keren from Abyssinia, is adapted to agricultural colonization, and the table-land is nowhere unfruitful. The fort at Asmara was rendered impregnable without the aid of artillery, barracks and magazines were erected, and other places in the Hamassen district were fortified during the summer.

The Shoan Mission.—Anticipating the ultimate accession of the ambitious Menelek to the supreme power, the Italians had cultivated friendly relations with him and favored his pretensions. Count Antonelli, the Italian envoy to Shoa, accompanied Menelek as far as Egyn, leaving him when he had obtained his signature to a treaty embodying the more important demands that the Negus Johannis had rejected when presented, in 1887, by the English embassy in a letter from Queen Victoria, and later in the peace negotiations with Gen. San Marzano when the Abyssinians confronted the Italian encampments in March, 1888. The treaty was conveyed to Italy by an embassy of twenty Shoan chiefs, who arrived at Rome in August. King Menelek agreed to recognize the sovereign rights of Italy over the places actually occupied by Italian troops, and for that reason the military authorities made haste to raise the Italian flag over Keren and Asmara. The Italians agreed to open the port of Massowah to the unrestricted commerce of the Abyssinians, in return for special facilities in comparison with other nations. Menelek accepted an Italian protectorate over the whole of Ethiopia. The treaty was made by Count Antonelli on May 5, and was ratified by King Umberto on Sept. 25. On Oct. 3 a supplementary convention was signed at Naples by Signor Crispi and Makonen, chief of the Shoan Mission, providing for the termination of the blockade, and for the establishment of commercial relations between Italy and Abyssinia. It also makes provision for the appointment of an Italian consul-general in King Menelek's dominions and for mutual defense against a common enemy. On Oct. 13 the Italian Government declared a protectorate over all Abyssinia.

The Sagallo Incident.—Nicholas Atchinoff, calling himself Hetman of Free Cossacks, is a Russian adventurer who has visited Abyssinia and aided the Negus Johannis in his warfare against the Italians, and who, according to his own story, fought with the Mahdi against Gordon at Khartoum, and with Osman Digma against the English at Suakin. By taking some Abyssinian priests to Russia, he interested the Slavonic committees in a scheme for assimilating Abyssinian Christianity to the doctrines and worship

of the Orthodox Church and privately aiding the Negus in his conflict with the Italians, in the expectation of gaining for Russia the ascendancy in Abyssinia and the commercial and political foothold in Africa that Italy with heavy sacrifices had failed to attain. With pecuniary contributions of the Panslavists, Atchinoff fitted out an expedition, consisting of 146 persons, the publicly announced purpose of which was to make propaganda for the Greek religion in Abyssinia by establishing schools and churches. The party consisted of Capt. Atchinoff, Archimandrite Paisy, 9 popes, 20 military officers, a band of 40 South Cossacks—artisans and cultivators, who were likewise acquainted with military duties—and the wives and children of many of the emigrants. The disguised purpose of the expedition, that of assisting the Abyssinian belligerents with arms and military instructors, was as widely bruited as its ostensible religious mission. The only ports giving access to Abyssinia are Mas-sowah and Obock. Atchinoff and his backers reckoned on opening an avenue into Abyssinia from French territory, expecting public opinion in France to commend a breach of the neutrality laws in favor of a Russian enterprise aimed against the ally of Germany. The expedition passed through the Suez Canal and the Red Sea in an Austrian packet to Jeddah, followed by an Italian aviso, the "Barberigo." Slipping past the Italian vessel and a French cruiser that was watching, under cover of the night, the Austrian ship took the party down the blockaded coast and landed it, with its chests of arms, on the shore of the Bay of Tadjurah, which is under the protectorate of France.

The doings of Atchinoff have repeatedly been the subject of diplomatic correspondence between the French and Russian governments since 1886. In the spring of 1888 the Cossack adventurer had negotiated with the Sultans of Tadjurah for a grant of land on which he had left seven companions, forming what he called a Russian colony of the name of Moskva. As he failed to return before the promised term of three months with more settlers, arms, and provisions, the deserted colonists escaped to European stations, and were assisted on their way back to Russia. Russian diplomatic agents in Paris and Cairo, in reply to French interrogatories, gave official contradictions to Atchinoff's assertions at Port Said and Jeddah that his enterprise was under the patronage of the Czar. When the expedition landed at Tadjurah, on Jan. 18, the governor of Obock sent an official to inquire his intentions of Atchinoff, who said he had come to found a colony, and would remove in a few days to Sagallo, a district outside French jurisdiction over which he had acquired sovereign rights by treaty with the native chiefs. He was told that by virtue of prior treaties and formal acts of occupation, the territory was subject to France, but that he was at liberty to establish a Russian settlement if he would acknowledge French sovereignty and conform with the regulations by delivering up superfluous arms, as the importation of firearms as an article of commerce was interdicted on protected territory.

Atchinoff departed with his companions for Sagallo, and there took up his quarters in an old fort, on which he hoisted the Russian commer-

cial flag. He said that he expected other cargoes of arms from Odessa. In answer to further demands of the French governor he refused to recognize any authority except that of the Emperor of Russia. M. Goblet apprised the Russian Foreign Office of this state of affairs, and received the assurance that, as soon as the imperfect communications would permit, a Russian war-vessel would be sent to bring Atchinoff to reason. Sagallo is the starting-place of a caravan route into the interior; but Atchinoff was not able to open communications with Abyssinia and send on the missionaries and the munitions, for the reason that passage through Aoussah was denied at the behest of the Italian authorities, the Sultan detaining as hostages two Tadjurah chiefs who were sent to treat with him in behalf of Atchinoff.

According to French accounts, Atchinoff not only incited hostile and rebellious feelings against the protecting power among the natives, but through his brutal tyranny came into conflict with them and with his own followers, producing a situation that compelled the naval authorities to take measures to avert disturbances without waiting for the promised interference of the Russian Government. On Feb. 17 Admiral Olry sent the Cossack leader an ultimatum to the effect that if he did not lower the Russian ensign and give up his mitrailleuse and boxes of rifles, except such as were necessary for personal protection, the fort would be bombarded in twenty-four hours, whereas if he complied with French laws the religious mission would be granted facilities to penetrate into Abyssinia, and the others might colonize Sagallo or go forward unmolested. On the 18th the French commander, wishing to avoid a hand-to-hand combat with the Russians, having an insufficient landing-force, fired shells into the fort, killing five persons and wounding as many more. Some one inside then displayed a white flag, and the Russian colors were hauled down. The Frenchmen landed and took the whole Russian party. The ecclesiastics, as well as the others, preferred being sent back to Russia instead of going to Abyssinia. They were forwarded to Suez, and there given into the custody of the Russian authorities, and conveyed on a man-of-war to Odessa.

Unfortunately, among those who were hit in the bombardment were women and children, owing to Atchinoff's cruel order forbidding any person to retire from the fort. The Sagallo incident produced a painful impression in Russian patriotic circles, although the Russian Government, in an official *communiqué*, threw the blame upon Atchinoff, and declared that it would have no influence on the existing relations between Russia and France. M. Spuller, the new French Minister of Foreign Affairs, defended his predecessor in a semi-official note and in the Chamber, while the responsibility for the affair rested with M. Goblet. The anti-Republican and Boulangist factions embraced the occasion for Chauvinistic attacks on the Government, which led to the suppression of the League of Patriots and remarkable political consequences. (See FRANCE.)

ADVENTISTS, SEVENTH-DAY. The statistical reports of this denomination, made to the General Conference in October, 1888, give for the thirty-two conferences and five mission fields: Number of ministers, 232; of licentiates, 168; of

churches, 901; of members, 26,112. Amount of tithes paid in for the eight months ending July 30, 1888, \$163,129. The mission fields—British, General Southern, New Zealand other Pacific islands, and South African—returned of these numbers, 16 ministers, 7 licentiates, 26 churches, and 1,709 members. The receipts of the General Conference for eight months had been \$26,634, of which \$17,514 had been paid to ministers; and the receipts of the General Conference Association had been \$103,112.

In connection with twenty-two missions in cities, 131 persons had been engaged in Bible work, who had visited 10,353 families. Sixteen of the missions reported 526 converts since they were established. The missions had contributed, in tithes and gifts, \$6,852 to the Church and its enterprises. The sum of \$38,712 had been contributed for foreign missions.

The receipts of the International Tract Society had been \$131,598, while the the "total receipts of State secretaries" were returned at \$198,456. One hundred and six cities in the United States and forty in foreign countries had been entered by the agents of the society. About five hundred reading-rooms in the United States, Great Britain, and Australia were supplied with the religious periodicals of the denomination. The work of distributing religious periodicals and other publications had been extended to China, South Africa, Holland, the West Indies, and Pitcairn and other islands in the Pacific Ocean. Several sets of bound volumes had been placed in colored schools in the South.

The International Sunday-School Association had received \$9,931, while the contributions received by the schools amounted to \$16,944, the gifts of the schools to missions to \$10,076, and their gifts to State associations to \$1,346. Nine hundred and fifty-five schools were returned, with 25,560 members.

At the meeting of the American Health and Temperance Association favorable accounts were received from the State organizations of the interest of members and improvement of public sentiment in favor of health and temperance. Special instruction in these subjects and on social purity was given at Battle Creek College and at several of the State camp-meetings.

The accounts of the Central Publishing Association, Battle Creek, Mich., were balanced at \$373,896; those of the Pacific Press Publishing Company, Oakland, Cal., at \$305,291. The sales from the Central establishment had amounted (at wholesale rates) to \$69,693; the Pacific Press Company had done a year's business of \$163,935. Publishing establishments were in operation abroad at Basle, Switzerland (valued at nearly \$60,000); Christiania, Norway (\$60,000); Melbourne, Australia (\$25,000); and London (\$5,000). The accounts of the Educational Society were balanced at \$112,232. The institutions are Battle Creek College, Mich., Healdsburg College, Cal., South Lancaster Academy, Mass., and preparatory schools at Milton and East Portland, Oregon, Minneapolis, Minn., and Ottawa and Lehigh, Kansas. The last is German. In connection with the health and temperance work of the denomination, sanitariums are established at Battle Creek, Mich., St. Helena, Cal., and Mount Vernon, Ohio.

General Conference.—The General Conference met at Minneapolis, Minn., Oct. 17, 1888. S. N. Haskell presided in the absence of the regular president, George I. Butler. The Arkansas and Australia conferences were admitted. A committee on the subject of a missionary ship reported upon its efforts to secure a suitable vessel for the use of the conference. A vessel had been furnished by one of the members of the Church to transport a missionary to Pitcairn Island. Action was taken by the conference recommending provision for the instruction of the people at all general meetings on what the Bible teaches as to church discipline and on the duties of officers and members and the holding of monthly meetings for prayer and counsel; approving the disuse of tea, coffee, opium, and tobacco; pledging support to measures for the prohibition of the liquor traffic, and protesting "against any legislation which discriminates in favor of any religious class or institution, or which tends to the infringement of anybody's religious liberty"; commending the organization of health and temperance societies; inviting the conferences to send candidates to the Sanitarium Training School for Nurses; denouncing the "National Reform" party, as a menace to religious freedom, and recommending the circulation of a book presenting the Seventh-Day-Adventist view on the relations of "Civil Government and Religion"; condemning the "Blair amendment" to the Constitution of the United States and the "National Sunday bill" of May 21, 1888 as tending toward union of church and state; appointing a committee to appear before the Senate Committee on Education and Labor "in the interests of religious liberty," and recommending the commission of qualified speakers to go about and make addresses on the subject; making various provisions for advancing religious work in foreign fields, for the training of foreign laborers, and the promotion of mission schools; concerning city missions; and advising the holding of yearly institutes in each State and special general institutes for the study of the doctrines of the Church and its methods of working in the various departments. Persons wishing to discuss views differing from those usually taught by the denomination were advised to present them to the conference committee of their State; the conference committee, if it thinks proper, to present them to the State institute; and that body, if it consider the matter of sufficient importance, to recommend it to the consideration of the General Conference Institute.

Second-Advent Christian Association.—This body, besides awaiting in common with other Second Adventists the speedy second coming of the Lord, holds to the doctrine of immortality through Jesus Christ for the righteous alone. The thirtieth annual meeting of the association was held in Chelsea, Mass., Aug. 7 and 8. Elder E. A. Stockman presided. The treasurer reported of the Sick and Poor Ministers' fund that the receipts for the year had been \$668, and the expenditures \$448; and of the "Help the Needy fund," receipts, \$124, expenditures \$38. The receipts of the Publishing Society had been \$31,227, and its expenditures \$27,121, while the amount of its assets was returned at \$31,346. It had published twelve new tracts and books.

Gifts of \$267 had been received for the Tract fund, and \$594 worth of tracts had been granted in answer to applicants. A book on "Conditional Immortality," by a Congregational minister, had been accepted for publication. Five periodicals—for general reading, young people, and Sunday-schools—were published under the direction of the society, and an appropriation had been made to aid in establishing a new paper in the West. The association directed that two publication societies be established, one in the East and one in the West, to be sovereign in the management of their affairs. Resolutions passed by the association, besides expressing the belief that the people of the body had been called out by the Lord to give the world the special message of his coming to judgment and insisting on the importance of organization for that purpose, urged ministers, missionaries, and evangelists to form church and conference organizations at all suitable places in the new fields in which they may labor. The collection of a mission fund was advised for sending missionaries throughout the United States, and to England, Australia, Ireland, Canada, Nova Scotia, and other places open for missionary work. A committee was appointed to further the preparation and publication of a book of standard and substantial merit on the subject of the near and personal second coming of Jesus Christ. Provision was made for the preparation of a denominational register, giving the names and statistics of ministers, churches, Sunday-schools, and membership.

AFGHANISTAN, a monarchy in Central Asia, between Russian Turkistan and British India. The present ruler is Abdurrahman Khan, Ameer of Cabul, who receives a subsidy from the Indian Government and is under a treaty obligation to follow the Viceroy's advice in his dealings with foreign powers, the Calcutta Government being bound in turn to aid in the defense of his frontiers against unprovoked foreign aggression.

Revolution in Afghan Turkistan.—The Ameer, with the help of British money and munitions of war, strengthened his power by overcoming, before the winter of 1888-'89, a formidable rebellion in the northern part of his dominions. Ishak Khan, who had reconquered Afghan Turkistan and for many years administered it on a semi-independent footing, took advantage of his cousin's troubles with the revolted Shinwarris and Ghilzais to renounce his allegiance and rebel against Abdurrahman, in the hope of seizing the throne of Cabul, which his father had once occupied. Gholam Haider Khan, deputy commander-in-chief of the Ameer's forces, a most successful general, who had commanded in the operations against the rebel Ghilzais, marched rapidly into Turkistan with an overwhelming force, before the revolution was well organized. The armies met in pitched battle, and Ishak was defeated and his troops dispersed with great slaughter. Gholam Haider was appointed Governor-General of Afghan Turkistan. In January Ishak Khan fled with his followers across the Amu Darya, and took refuge with the Russians. The Uzbek Sultan, Murad Khan, who took part in the revolution, crossed into Bokhara, with 3,000 families of Afghan Uzbecks, who were settled on the lands of the Ameer of Bokhara,

the refugee Sultan and his fighting men entering the Bokharan service. After the suppression of the rebellion, Gholam Haider Khan withdrew the main body of the troops to engage in a campaign against the insurgent Shinwarris, while Abdurrahman went to Turkistan to establish his rule by measures of vengeance and terror. The Russians accused Abdurrahman of endeavoring to extend his influence beyond the boundary fixed by international agreement, suspecting him of an intention to pursue his fugitive subjects into Bokhara, or of wishing to inveigle the Bokharan Ameer into a secret alliance against Russia, or of intriguing with the Russophobe party in Bokhara and exciting the fanaticism of the Mollahs against the Christians. Great excitement was produced in Bokhara by the wholesale execution of friends and relatives over the border, and there was danger of a collision with the troops of Abdurrahman. A concentration of Russian troops was ordered. The Muscovite force in Turkistan amounted, in the early months of 1889, to 17 battalions of infantry, 14 squadrons of Cossack troopers, a brigade of artillery, and 5 batteries of guns. A large Russian garrison was posted at Kerki, and a road and a telegraph were constructed to connect that fortress with Chardjui, steamboat communication having proved unsafe. The advanced guard at Kerki was placed under the command of Gen. Christianin. Gen. Komaroff, commander-in-chief, removed his headquarters to Chardjui. Abdurrahman remained at Mazar-i-Sherif throughout the year. On his arrival at that place he broke off commercial relations with Russia and strengthened the frontier posts. His military force consisted of from 12,000 to 15,000 troops armed with breech-loaders. Those partisans of Ishak Khan who did not escape into Bokharan or Russian territory were executed at the rate of 300 a day. The Russians received Ishak Khan with honor, and gave him a residence at Samarcand and a liberal pension, with lodging and support for 500 followers. The adherents of Ishak Khan continued through the spring to emigrate by thousands, to escape the Ameer's vengeance. In attempting to impose his rule in Badakshan, especially by enrolling the young men in his army, Abdurrahman provoked a rebellion in the summer. The insurgents imprisoned the Ameer's officials. Regular troops were sent against them from Mazar-i-Sherif, and re-enforcements were brought from Cabul. The rebels, with their primitive weapons, could not stand up before breech-loading rifles, and in a month the province was reduced to subjection.

The Russian Transcaspian Railway.—The great strategic railroad skirting the borders of Persia and Afghanistan, binding the Central Asian Khanates to Russia, is said to be already a success in a commercial sense, as well as for military purposes. Not only are troops, officials, and tourists being conveyed along its line, but there is also a considerable movement of merchandise. It is largely used as a trade route between India and Central Asia, and the principal traders of Central Europe and Asiatic countries, including Afghanistan and Persia, are joining in a combination to develop trade along the line of the railroad, which offers to reward them by placing the freight tariffs for them very low. Afghanistan has been accorded the same favor-

able terms that were previously given to Persia. Gen. Annenkoff has proposed to extend the railroad from Samarcand, the present terminus, to Tashkend. He has also urged the Government to acquire possession of the Transcaspian oil-fields, in order to insure the railroad a supply of naphtha, the only available fuel, of which 1,500,000 poods were required for the year 1889; otherwise he fears that the prices will be artificially advanced by a combination of well-owners, and that, through natural causes, they will rise inconveniently when the pipe-line shall have been laid between Baku and Batoum.

ALABAMA, a Southern State, admitted to the Union in 1819; area, 50,722 square miles; population, according to the last decennial census (1880), 1,262,505; capital, Montgomery.

Government.—The following were the State officers during the year: Governor, Thomas Seay, Democrat; Secretary of State, Charles C. Langdon, who died on June 8, and was succeeded by J. D. Barron, appointed by the Governor; Treasurer, John L. Cobbs; Auditor, Cyrus D. Hogue; Attorney-General, Thomas N. McClellan, who resigned on March 6, and was succeeded on March 18 by William L. Martin, appointed by the Governor; Superintendent of Public Instruction, Solomon Palmer; Commissioner of Agriculture, Rufus F. Kolb; Railroad Commissioners, Henry R. Shorter, Levi W. Lawler, W. C. Tunstall; Chief Justice of the Supreme Court, George W. Stone; Associate Justices, David Clifton and H. M. Somerville. The Legislature of this year made provision for a fourth justice of the Supreme Court, and the Governor, on March, 7, appointed Attorney-General McClellan.

Finances.—The balance in the State treasury on Jan. 1 of this year was \$153,373.46, of which \$100,093.49 was available for general revenue purposes. On Oct. 1 preceding the balance was over \$555,000. The latter figures represent more nearly the average surplus for the year. The bonded debt consists of \$7,721,300 in 4-per-cent. bonds, \$539,000 in 5-per-cent. bonds, and \$954,000 in 6-per-cent. bonds, in all \$9,214,300. The Governor is authorized to redeem the 6-per-cent. bonds on Jan. 1, 1890, when they first become redeemable, and to issue 4-per-cent. bonds to the same amount.

Legislative Session.—The Legislature met in regular biennial session on Nov. 13, 1888, and adjourned on Feb. 28, having taken a month's recess, which ended on Jan. 29. Early in the session United States Senator John T. Morgan, Democrat, was re-elected without opposition for the term beginning March 4, 1889. Fully five sixths of the legislation was local and special. The Supreme Court was enlarged from three to four members, and provision was made for calling in a member of the bar to sit with the judges in any case where they are equally divided in opinion. The drummers' license tax, declared by the United States Supreme Court to be unconstitutional, so far as levied upon non-residents coming into the State, was repealed. An evidence of the improved financial condition of the State is found in the reduction of the tax rate from 5 mills to 4½ mills for 1890, and to 4 mills for 1891. To prevent any deficiency caused by this reduction, the Governor was authorized to borrow not more than \$100,000, in

his discretion. This Legislature granted also a much-needed increase of appropriation for the support of the public schools, by which the annual State expenditure for this purpose will be \$350,000, instead of \$250,000. The sum of \$50,000 was appropriated to complete and equip the building of the Agricultural and Mechanical College; \$11,600 for an additional building at the Alabama Academy for the Blind, and \$20,000 for repairing and furnishing the Capitol building and improving the grounds. A mechanical and industrial department was established at the Alabama Institute for the Deaf, and \$5,000 was appropriated for a building. The act of Feb. 22, 1887, authorizing the Governor to issue and sell bonds not exceeding \$954,000, bearing not over 3½ per cent. interest, in order to raise money to pay that part of the State debt accruing in 1890, was amended so as to allow the issue of 4-per-cent. bonds to the same amount. The number of legal holidays was increased by adding the 26th of April, Good Friday, and Mardi Gras. It was made punishable by fine to present fire-arms, whether loaded or unloaded, at another. It was declared unlawful for any person or persons, whether uniformed or not, to be associated or assembled together under any name in a military capacity for the purpose of parading, drilling, or marching, or otherwise taking up and bearing arms, unless permitted by law or by leave of the Governor; but this act does not apply to schools for military tactics or to certain benevolent orders named in the act. Whenever any mob, riot, or tumult occurs in any city, village, or town, all persons therein who sell intoxicating liquors, arms, ammunition, dynamite, or other explosives, shall at once close their places of business and keep them closed and refrain from selling till the local authorities publicly announce that they may be opened. A forfeiture of the license to sell and a heavy fine or imprisonment are the penalties for violating this act. Certain local officers and the commanding officer of the State troops when called out for duty are required to issue orders closing such shops and saloons, when there is reason to apprehend trouble or an outbreak has occurred. Selling liquor to State troops on duty without leave of the commander is severely punished. The board of prison inspectors is required to adopt rules that will prevent inhuman treatment of State and county convicts, and to regulate the time, amount, and manner of working them. The sum of \$50,000 was appropriated for the relief of disabled Confederate soldiers and the widows of those killed in the late war, and the manner of its distribution was prescribed. Other acts of the session were as follows:

Providing for a commission of lunacy of three members which shall have control of the criminal insane, and regulating the trial and care of such persons.

Creating an additional judicial district, called the Tenth Judicial District.

Authorizing corporations to alter and amend their charters.

Permitting building and loan associations to increase their capital stock.

Releasing any claim now held by the State to lands sold for taxes prior to 1881 to the existing owners of such lands.

To authorize the separate redemption of distinct parcels of land sold for taxes under one decree.

Providing that persons who have paid taxes more than once on the same property in the same year may have the excess so paid refunded by the State or county upon proof thereof before a judge of probate, and upon obtaining from such judge a certificate of the amount so overpaid.

To authorize the taking outside the State and perpetuating the testimony of non-residents of the State.

Authorizing the Governor to issue patents to purchasers of swamp or overflowed land or lands in lieu of the same, which have been or may be patented to the State upon satisfactory proof that such lands have been fully paid for.

Appropriating \$22,500 for the expenses of the encampment of the State troops for 1889 and 1890.

Providing that all deeds or conveyances of any kind not filed and recorded within the time prescribed by law, may be filed and recorded within two years from the date of this act, and such record shall be valid notice as against all but existing *bona-fide* creditors and purchasers without actual notice of such deed.

Authorizing members of the various farmers' alliances and other similar organizations to form themselves into a body corporate.

To enable planters, farmers, and crop-growers to mortgage unplanted crops.

Providing a penalty of \$25 and upward for selling any pool or ticket or other device, or wagering anything upon any horse-race, prize-fight, drill, base-ball game, or other contest occurring outside the State, or for acting as agent of any one in procuring or placing outside the State any pool, ticket, or other device or wager, and giving the mayor of each city and incorporated town concurrent jurisdiction with the courts over offenses against this act occurring in the county in which said city or town is situated, and giving the police of such city or town authority to make arrests within five miles of such city or town.

To provide for the sale of property of minors in order to remove the proceeds from the State.

Authorizing the Governor to convey title to the United States of lands needed by the latter for light-houses, or other aids to navigation, the State retaining concurrent jurisdiction for legal purposes over such lands.

To regulate the survey and division of lands into town lots, and requiring such surveys to be recorded in the office of the judge of probate before sales of such lots are made. A fine is imposed for selling lots without complying with this act.

Providing that if the owner of any judgment or decree rendered by a court of record for the payment of money shall file, in the office of the judge of probate, a certificate of the clerk of said court reciting the nature of such judgment or decree, the same shall be a lien for ten years on all land of the defendant in said county and shall be notice to all persons of the existence of the lien.

Defining a lawful fence.

Punishing embezzlement in the same manner as larceny.

Permitting the State health officer to modify the restrictions of all quarantines established by county and municipal authorities when such appear to be too severe or too lax.

Authorizing private business corporations incorporated under the laws of this State to hold meetings and do corporate acts in other States.

Declaring it unlawful to employ female clerks in stores without providing accommodations for sitting down and resting and allowing them to do so when not otherwise employed. A fine of not less than ten dollars is incurred for violating this act.

Permitting the issue of preferred stock by corporations organized under the general laws. To enable heirs and distributees to perpetuate testimony to show that they are such.

Permitting the codification every ten years of the local laws of each county.

Providing that railroad corporations of the State

may hold meetings and transact business outside the State.

Regulating the public printing of the State, and providing that it shall be done by contract.

Assenting to the act of Congress of March 2, 1887, providing for the establishment of agricultural experiment stations in the States.

Incorporating the cities of Fort Payne, in De Kalb County, and Jenifer, in Talladega County.

Providing for local option in Covington and Geneva Counties.

Providing that the widow or minor children shall not forfeit to the claims of heirs or creditors any homestead estate set off to them by their removal therefrom, if they still reside in the State or are only temporarily absent therefrom.

Requiring county tax-assessors to make a list of all lands in their county, and the owners, and to file the same for public inspection in the office of the judge of probate.

Education.—The report of the State Superintendent of Education for the year ending Sept. 30, 1888, presents the following statistics. Outside of 14 separate school districts, in which are included the larger cities, there were taught during the year 3,744 schools for white, and 1,958 for colored children. The total number of white pupils enrolled in these schools was 159,671, and of colored pupils 98,919. The average daily attendance of white children was 98,675, of colored children 66,424. The white schools were taught 68.9 days on an average, and the colored schools 67.4 days. There were employed 2,368 male and 1,350 female teachers in the white schools, and 1,290 males and 585 females in the colored schools. There was an average of 41 pupils to each teacher of white children, and 49 pupils to each teacher of colored children.

The average monthly pay of teachers, \$22.31, is less than in nearly every other Southern State, and the total available school fund for 1887-'88 amounted to only \$539,209.04. The Legislature has this year increased by \$100,000 the annual appropriation for school purposes.

The number of pupils enrolled in the separate school districts, and not included in the above figures of enrollment, is as follows: Birmingham, 2,156; Montgomery, 1,543; Selma, 891; Tuscaloosa, 679; Eufaula, 452; Decatur, 411; Huntsville, 520; Troy, 533; Opelika, 289; Brownsville, 249; Cullman, 182; Prattville, 209; Uniontown, 564; total, 8,678. In these districts the sum of \$174,183.10 was raised in 1888 by local taxation for support of schools, in addition to the State apportionment.

The biennial report of the trustees of the State University for the years ending in June, 1887 and 1888, gives the total number of matriculates for 1886-'87 as 212, and for 1887-'88, 238. During this period there were 111 graduates. During 1887 the sum of \$53,556.11 was received from all sources, and the sum of \$53,632.77 disbursed. In 1888 the receipts from all sources were \$57,444.54 and the disbursements were \$57,721.49, leaving a balance on hand, June 16, 1888, of \$1,976.06. Many improvements have been made in the past two years. Garland Hall has been built and furnished, water works have been built, two new professors' dwellings have been erected, and the chemical laboratory has been fitted up with the newest and best apparatus to be found.

The normal-school property at Florence con-

sists of thirteen acres and a building worth about \$50,000. The annual appropriation of the State has been \$7,500. There is a primary department in addition to the normal course. At the beginning of this year there were 135 normal pupils at this school, and 121 persons were graduates. The number in attendance during 1887-'88 was 218.

A State normal school and university for colored students has been located for several years at Marion, in Perry County. The Legislature undertook, in 1887, to establish the Alabama University for colored pupils, and to use the money heretofore appropriated to this normal school for the use of the new university. This proceeding was declared by the State Supreme Court to be illegal, and the legislature of this year accordingly determined to continue the normal school, abandoning the idea of a university, and to change its location to some place to be chosen by a board of trustees. The sum of \$15,000 was appropriated for land and buildings.

The normal school at Jacksonville, established in 1883, gave instruction to 176 pupils during 1887-'88, at an expense of \$5,109.60. At the Livingston Normal College there were, during the same period, 126 pupils; at the Huntsville Normal School, 135 pupils in the normal course and 167 in the model school; at the Tuskegee Normal school, 525 pupils; and at the Troy Normal School 135 pupils in the normal course and 304 in the model school. The school at Troy was established in 1887. All who enjoy the benefits of normal instruction at these institutions are required to sign an obligation to teach for two years at least in the common schools. A bill abolishing the entire normal-school system was debated at length in the General Assembly of this year, and found supporters sufficiently numerous to carry it through the Lower House, but it failed to become a law.

Railroads.—The valuation of railroad property, as assessed by the State board for 1889, aggregated \$40,163,776.18. This valuation only includes tracks and rolling stock, all other property, real and personal, being assessed in the counties by the tax assessors. The statement shows an increase in valuation over last year of \$4,855,918.81.

Industrial Development.—The valleys of the Tennessee and the upper Alabama rivers in the northern portion of the State have witnessed in the past few years a wonderful development. Five years ago Birmingham was but little known and gave but little promise of the growth that has marked its history since 1886; Anniston was hardly heard of outside of its own county; Decatur was a country town of probably 1,200 inhabitants; Bessemer had not even been dreamed of by its projector; Sheffield was a corn field; Roanoke numbered fewer than 2,000 people; Florence was a sleepy Southern town, living on cotton trade alone; and Huntsville was similarly situated. (See *CITIES AMERICAN, RECENT GROWTH OF*, in "Annual Cyclopædia" for 1888 and 1889.)

On the other hand, the central counties of the State, embracing the so-called "black belt," where agriculture is the leading industry, show a steady decline. Not only are the proprietors of the soil selling their farms or leaving them to tenants, but the negroes are rapidly emigrating,

so that farm laborers are becoming difficult to procure. These emigrants go either to Texas and the West or to Birmingham and other cities of the "mineral belt." During the present year the negro exodus has been unusually large. Nevertheless, Montgomery and Selma, the two cities of this region, have grown in population.

The southern tier of counties—including Clark, Monroe, Pike, Washington, Butler, Conecuh, Escambia, Covington, and Geneva—constitute the timber belt of the State. The logging and milling industry here flourishes along the streams, which furnish water for floating logs to market or power for sawing them. For several years both logging and milling have proved very profitable, and large quantities of lumber are shipped to the North and to South America and England. The Alabama Midland Railroad, from Montgomery to Bainbridge, Ga., 175 miles, constructed during the year, runs through the eastern portion of this belt.

Immigration.—On Dec. 12, 1888, a convention of nearly 600 delegates from all the Southern States met at Montgomery, under the name of the Southern Interstate Immigration Convention. The presence of the commissioners of immigration and of agriculture from the various Southern States, together with other delegates appointed by the several Governors, gave the convention an official standing. John D. Roquemore, of Montgomery, was chosen temporary president, and P. W. Peoples, of Mississippi, permanent president. The sessions continued for two days, and after an earnest discussion it was resolved to establish a Southern Interstate Immigration Bureau, "for the purpose of securing added population and capital for the Southern States and Territories, securing uniform freight and immigration rates, the opening of a general office and the establishment of such other offices and agencies, the arranging of fairs and expositions, establishing ports of entry, and the doing of all other things necessary for the development of every State and Territory embraced in the call of this convention." It was voted to choose an executive committee to consist of a member from each State and Territory, that said executive committee shall elect a general manager, and that said executive committee and general manager shall constitute the Southern Interstate Immigration Bureau. The executive committee chosen by the convention selected B. F. Chilton, of Texas, to be the general manager. A few weeks later he issued an address explaining the proposed work of the bureau, which included not only the dissemination of literature regarding the South, but the establishment of a permanent Southern exposition at some large Southern city and the equipment of a special car containing specimens of Southern products and information regarding lands that may be purchased by intending settlers, this car to visit all the large centers in the North and West. In 1888, Commissioner R. F. Kolb adopted the plan last mentioned, and in a car equipped with Alabama products visited the various cities of the West and Northwest. He claims that as a direct result of this trip, more than 1,000 people and over \$1,000,000 of capital have come into the State during the first half of this year.

Farmers' Organizations.—For many years the "granges" were the only organizations known to the farmers of the State. They had their season of prosperity, but of late have declined. In the northern counties there are a few agricultural wheels, so-called—semi-political farmers' clubs, which have attained considerable popularity in Arkansas and Tennessee. During the past three years "farmers' alliances" have succeeded the "granges" in popularity. They have absorbed other local agricultural societies, and at the beginning of this year had been organized in 46 of the 66 counties of the State. There is a central State Alliance, and a State Exchange has been established during the year. The efforts of the organization during the year were chiefly directed against the combination known as the Jute Bagging Trust, by which the price of the covering for cotton used by farmers was increased about 100 per cent. A conference of delegates from alliances in nearly all the Southern States met at Birmingham on May 15 for the purpose of considering this subject, and recommended the farmers to use cotton bagging instead of jute. This recommendation was approved by the State Agricultural Society of Alabama at its State convention at Union Springs, on July 24 and 25. The annual meeting of the State Farmers' Alliance, at Auburn, on Aug. 9, took similar action, and on Aug. 21 the Southern Interstate Farmers' Association, at its annual convention, in Montgomery, strongly urged all planters to avoid the use of jute bagging. The latter convention, of which L. L. Polk, of North Carolina, was president, adopted resolutions advising farmers to insist that no more than the actual weight of the bagging be taken out for tare by purchasers; that they avoid using commercial fertilizers; that they secure the election to office of those who are friendly to the agricultural interest; that the acreage of cotton be gradually reduced to nearly half its present amount; and that the area thus released be sown with various grains.

Exports.—For the year ending Aug. 30, 1889, the total receipts of cotton at Mobile were 230,680 bales, and the exports 229,184 bales. The total export of lumber, 48,284,162 feet, is one third larger than in any previous year, and the export of 3,049,440 cubic feet of timber, also largely exceeds the record of previous years. There was a considerable shipment of staves and shingles both to domestic and foreign ports. There were also shipped 66,950 crates of cabbages, valued at \$133,900, and 46,508 barrels of potatoes, valued at \$111,619. The total value of all exports to foreign ports was \$3,192,997, while the imports of foreign goods reached only \$153,862.

ANGLICAN CHURCHES. Statistics of the Church of England.—The Church of England has no systematic means, officially sanctioned, for registering statistical records of church work. The projectors of the "Official Year-Book" are able, therefore, only to publish such facts respecting the concerns and growth of the Church as are voluntarily furnished them, whether in answer to inquiry or without it. The information and tables contained in that work are to a considerable extent fragmentary, and largely local. The reports contained in the

"Year-Book" for 1888 show that the Church is growing in several directions faster than the population is increasing. According to these reports, £1,101,000 was spent in church extension in 1887; 217,000 persons were confirmed in 1888, against 138,000 in 1875, showing an increase of nearly 58 per cent., or almost four times the growth of the population, in thirteen years. Since 1811 the Church has spent for educational purposes £32,000,000, of which £16,750,000 have been expended in the past eighteen years, or since Mr. Forster's Education Act was passed in 1870. In 1878 the established churches in London gave £17,333 out of a total of £23,681 contributed to the "Hospital Sunday" fund, or 73 per cent. of the whole. In 1888 they gave £29,686, out of a total of £37,235, or within a fraction of 80 per cent.

The "Year-Book" contains much special information concerning the growth of the Church in Wales, where the question of disestablishment is actively agitated. In three out of the four dioceses in the principality, there are flourishing diocesan Church Extension Societies, which in 1888 contributed and disbursed between three and four thousand pounds for that object; and in 1887 the amount of money raised locally throughout Wales for church building, endowments, parsonages, etc., in the four dioceses was nearly £80,000. In the ten years ending with 1887, 89 churches were built or rebuilt, and 146 restored or enlarged; and within a very recent period accommodation has been provided in the form of mission churches and rooms for nearly 80,000 worshippers. The records of all the dioceses show a rapidly growing rate of increase from year to year in the number of persons confirmed, amounting in Bangor to 74, and in St. David's to 45 per cent., in the triennial totals, in nine years.

Church Missionary Society.—The meeting of the Church Missionary Society was held in London, April 30. Sir J. H. Kennaway, M. P., presided. The income of the general fund had been £211,378, or £16,821 more than in the previous year, and £3,602 more than the highest in any former year. The expenditures had been £214,383, of which £8,651 had come out of the extension and other similar funds; so that the regular income account showed a surplus of £5,666, and a contingency fund of £6,221 had been accumulated. The contributions to special funds had been £40,638, making the aggregate receipts for the year £262,016. The missions returned, so far as reports had been received, 299 stations, 356 European missionaries, 286 native and Eurasian clergy, 4,556 lay teachers, 186,956 native Christians, 48,194 communicants, and 1,759 mission schools, with 75,125 pupils. A prominent feature of the year's history of the society at home had been the unusually large number of persons who had been accepted as missionaries without preparation under the society's auspices, they being fully qualified by reason of their previous training. Of them the University of Cambridge had sent nine, that of Oxford two, Dublin two, London one, and Edinburgh one. Nearly half of the fifty candidates that were accepted were women, and one third of them were to go out to the mission-fields at their own charge.

Society for the Propagation of the Gospel.—The annual meeting of the Society for the Propagation of the Gospel in Foreign Parts, was held in London, June 6. The Archbishop of Canterbury presided. The gross income for the year had been £138,366, a larger amount by several thousand pounds than had been returned in any previous year in the existence of the society. The larger part of the increase of funds was the result of two gifts of £25,000 and £2,268, the former sum being five sixths of a property that had been left to an unnamed clergyman. The society employed 637 ordained missionaries, including 10 bishops, of whom 144 were Africans and Asiatics. It had in the various missions about 2,300 lay teachers, 2,600 students in colleges, and 38,000 children in the mission schools of Africa and Asia.

Universities' Mission.—The anniversary meetings of the Universities' Mission to Central Africa were held in London, May 21. Canon Scott Holland presided. The report referred to the troubles that had arisen in the society's field of operations (the Zanzibar coast and backlying region) from foreign aggression and the German and English blockade of the coast. Evidences of the progress of the mission could, however, be shown in the completion of the Suaheli Bible, and the consecration of the new chapel at Kingawi College. On the mainland no station had been given up, and no work abandoned. Twelve new members had joined the mission during the year, while two had been lost by death, and two had resigned.

Sunday-School Institute.—The Church of England Sunday-School Institute had received during the year ending May 1, 1889, £13,440. The report, reviewing the progress of Sunday-schools, mentioned the deliverances on religious teaching in the encyclical letter of the bishops at the Lambeth Conference in passages on the need of definite religious teaching and those in which Sunday schools were referred to. The Convocation of Canterbury had appointed a committee to inquire how Sunday schools could be improved, and the subject had been taken up at the Manchester Church Congress. The subject had received attention in the reports of the Commission on National Education. A "Service to be used at the Admission of Sunday-School Teachers" had been issued by the Institute, with the sanction of both the archbishops.

Convocation of Canterbury.—The Convocation of Canterbury met for the dispatch of business, Feb. 28. In the upper house, a communication was received from the Archbishop of York asking that copies of resolutions concurred in by both houses of the Southern Province be transmitted to the Convocation of York. The house resolved that such transcripts should be furnished. A resolution of the lower house concerning parochial guilds was concurred in. A committee was appointed to consider and report upon the expediency of sanctioning the appointment of lay readers, with commissions to be recognized in all the dioceses; what should be the order and nature of their services; and the rules and precautions needed to secure their fitness for their office. A proposed scheme for the joint action of the two convocations was approved "as likely to be useful in the present, and to lead to

closer co-operation in the future." In the House of Laymen a letter was read from the archbishop advising against the agitation of measures for the taxation of larger benefices for the benefit of poor ones, and inviting the opinions of the laity on the state of the law as to the solemnization of marriages in mother-churches, in district churches, etc., with reference to the existing acts, and the recent discussions upon those acts; upon the report of the Commission on Elementary Education; and on the duty of the Church, as a church, in respect of slavery. A draft of a bill to provide for the foundation of new bishoprics in England was approved. A committee was appointed to consider the archbishop's question about marriage. A resolution was passed in favor of the provision of additional church services, and of revision from time to time of the rubrics and directions contained in the Book of Common Prayer. The house also approved clauses in the draft bill authorizing the presidents and clergy of the convocations to lay before Her Majesty from time to time schemes for making alterations in and additions to the rubrics and directions, and declared it important that provision should be made to enable the service of the Church to be adapted to special circumstances. Respecting the report of the Educational Commission, the house resolved that it was important that all children should receive religious and moral training, that the teachers who are charged with such training should continue to take part in it; that registers should be marked before as well as after the religious instructions and observance begin; that any reasonable precaution that might tend to remove any suspicion of unfairness in the administration of the conscience clause should be adopted; and that continuation schools should be generally established in sequence to the elementary system of education, and that these schools should be adapted to the needs of working boys and girls, "so as to attract and interest tired children, and prepare them for the actual duties of life." Exemption of public elementary schools, for which no rent is paid from local rates, and payment of the fees of indigent children attending voluntary schools by guardians of the poor direct to the managers, were also recommended. A minute was passed by the house with reference to slavery, to the effect—

That although domestic slavery is incompatible with the full recognition of the equality of all men before God, and its continued existence must act as a direct encouragement to the slave trade, yet, inasmuch as it has the sanction of religious teaching and legalized custom in Mohammedan and pagan countries, the house recognizes that its abolition can not be compelled by external force, but confidently hopes that the advance of Christianity and civilization will in the near future bring about its entire supersession by free institutions; that the slave trade as now carried on by the Arabs in Equatorial Africa, being horrible in its cruelty and waste of human life, and one of the great obstacles to the rising hopes and encouraging prospects of Christianity and civilization in the interior of that country, it is the duty of the Church to make its voice heard on that subject; that in pursuance of the policy consistently maintained by Great Britain for the last eighty years in the suppression of the sea-going slave trade, and the signal success which attended the vigorous execution of that policy on the west coast of Africa, Her Majesty's Government should

be supported in such measures as may be possible to the same end on the east coast; that although the inland slave trade of Central Africa is at present beyond the reach of Government interference, every effort should be made to impress its horrors on the minds of Englishmen, and that the Church should encourage such peaceful enterprises, commercial or religious, as may lead to its diminution; that His Grace the archbishop be respectfully requested to consider the propriety of inviting the Church and other religious bodies to special prayer in connection with this subject.

A motion was adopted in the upper house favoring such legislation respecting marriage fees as will tend to remove the temptation to avoid the offices of the Church in marriage. The lower house adopted a gravamen commending the recommendations of the Royal Commission on Education respecting the support of voluntary schools to a larger extent than at present, out of the public funds.

The Houses of Convocation reassembled May 14, and discussed questions relating to the Marriage Act and clergy discipline. The upper house had proposed a memorandum for a draft bill by which the law should be so amended that instead of the man proposing to marry being required to have dwelt fifteen days in the parish of the church in which he desired to be married by banns, he might, upon producing a certificate that the banns had been duly published in the parish where he was an ordinary and permanent resident, be married in any other church in the same diocese. While the lower house had approved the main features of this proposition, a report adverse to it was adopted in the House of Laymen. The lower house adopted a report on the increase of the Episcopate favorable to the constitution of four new dioceses. On the subject of clergy discipline this house expressed the opinion that suspension or deprivation, substituted for imprisonment as a penalty for contumacy, would not be satisfactory if inflicted by the same courts that now have the power of procuring the imprisonment of clerks. A report was adopted on betting and gambling, recommending that measures of moral suasion, instruction, and admonition be applied with a view to mitigating the evils arising from their prevalence. The House of Laymen expressed its opinion that what is called "free education" would, if granted, seriously interfere with parental responsibility; weaken the position of religious education and of voluntary schools; and involve an unnecessary tax upon the public funds; and declared itself therefore satisfied that the report of the royal commissioners did not support any proposal for the abolition of school pence.

The Convocation of York met for the transaction of business Feb. 26. The President said in his opening address that the two houses would for the future sit separately, but would be liable to be called to sit together for special purposes. A resolution was passed declaring, that "a satisfactory church-discipline bill should provide a court of first instance with a judge learned in the law, with a jury, and at least one appeal on the facts as well as the law; and, further, that to take away the appeal to the crown of any benefited person for lack of justice would be a dangerous innovation." The lower house approved

the action which had been taken by the upper house in defining the conditions of a satisfactory clergy discipline bill, with amendments designed to make the same more definite.

Trial of the Bishop of Lincoln.—The case of Read and others against the Lord Bishop of Lincoln for irregularities in ritual, came for a hearing before the court of the Archbishop of Canterbury, Feb. 12. The archiepiscopal court, which was called for the trial is a tribunal which had long been out of use, and whose functions were nearly forgotten till it was revived for this case. Its origin and history are somewhat obscure, or at least lie outside the line of ordinary legal precedent. Certain cases are known to have been tried by the archbishop sitting as metropolitan in the middle ages, but only one clear instance could be found of the exercise of such a jurisdiction in Great Britain since the Reformation. This was the case of Bishop Watson, of St. Davids, who was tried for simony by Archbishop Tenison, in the reign of William III, when the archbishop's authority was upheld by the courts of appeal, and Bishop Watson was deprived and excommunicated. The present Archbishop of Canterbury, when urged upon the strength of this precedent to entertain and try the charges against the Bishop of Lincoln, hesitated to do so until he was assured that his jurisdiction would be recognized as valid under existing laws. The promoters of the suit therefore applied to the Privy Council, and obtained from it, on the 5th of August, 1888, a unanimous decision from the five lay judges and the five bishops constituting that tribunal, that the archbishop's jurisdiction remained valid. Pursuant to this decision, the archbishop decided to hear the case in person and to follow in every relevant detail the precedent in Bishop Watson's case. The court was constituted of the archbishop, with the bishops of London, Winchester, Oxford, and Salisbury as assessors.

The charges against the defendant recited that he had, within two years past, offended against the ecclesiastical laws in the diocese of Lincoln and province of Canterbury, by having in the Church of St. Peter at Gonts, in the city of Lincoln, Dec. 4, 1887, while officiating as bishop and the principal celebrant in the communion service, used, or permitted to be used, lighted candles when they were not required for the purpose of giving light; in having, at the same time and service, taken part in mixing water with the wine, and afterward consecrated and administered the mixture; in having, during the prayer of consecration, stood with his back to the people; in having permitted the singing of the "Agnus Dei" after the prayer of consecration, and before the reception of the elements; in having made the sign of the cross while pronouncing the prayer of absolution; in having participated in the ceremony of ablution; and in having performed similar acts, again recited in detail, during a service in the cathedral church of Lincoln, on the 18th of December.

The defendant pleaded to the jurisdiction of the archbishop's court, holding that the authority in proceedings against a bishop lay in the Convocation. Several sittings of the court were occupied with the hearing of the argument on this question. The archbishop announced his

decision May 11, as sustaining the jurisdiction of the archbishop's court, declaring, after a review of the authorities and precedents bearing on the case—

That from the most ancient times archiepiscopal jurisdiction has existed; that in the Church of England it has been from time to time continuously exercised in various forms; that nothing has occurred in the Church to modify that jurisdiction; and that even if such jurisdiction could be used in convocation in the trial of a bishop consistently with the ancient principle that in a synod bishops only should hear such a cause, it nevertheless remains clear that the metropolitan has regularly exercised that jurisdiction, both alone and with assessors.

At a sitting of the court, July 23, the defendant pleaded that the matters charged, seeing that they were charged as being done by him as bishop, were not offenses against the law, constitution, and canons of the Church and realm, and held that a bishop is not bound by the rubrics in the sense that a minister is. He would, however, take His Grace's opinion upon the point, whether the bishop was within the strict rubrical directions of all the rituals and of the Book of Common Prayer, and within the strict letter of the statute. The archbishop decided that "the court finds no reason to hold that when a bishop ministers in any office prescribed by the Book of Common Prayer he is not a minister bound to observe the directions given to the minister in the rubrics of the said office." The decision was declared to have the effect of overruling the objection and admitting the articles.

The proctors of the defendant, on the 13th of August, filed a "responsive" plea admitting the performance of certain of the acts alleged, but denying the allegations complained of in the articles of accusation, and submitting that the acts thus admitted were not, or any of them, illegal; and prayed, therefore, that the suit be dismissed.

The Reredos in St. Paul's Church.—A decision was given, June 2, by the Lord Chief Justice, with Mr. Justice Manisty and Mr. Baron Pollock sitting as a divisional court of the Queen's Bench Division, in the case known as that of the St. Paul's reredos. The case arose over the erection of a reredos of stone behind the altar, which had been advanced forty feet for the purpose, in St. Paul's Church, London. In one compartment of the reredos is a representation in bas-relief of the crucifixion, and above that a representation of the Virgin and Child. Four members of the Church of England, following the procedure prescribed by the Public Worship Regulation Act, 1874, represented to the Bishop of London that the sculptures were unlawful, as tending to encourage superstitious ideas. The bishop—being required under the act to take steps to determine the matter of the complaint, "unless he shall be of opinion, after considering the whole circumstances of the case, that proceedings should not be taken upon the representation," in which case he is required to state his reasons for declining to act—refused to allow the proceedings to go further. His reasons, as given in connection with the refusal, were that it had already been decided in the "Exeter case" that a reredos containing a representation of the ascension was a lawful erection; that the pres-

ent litigation was apparently intended to draw some unimportant distinction between the St. Paul's and the Exeter reredos; and that no benefit could result from the litigation that would compare with the harm done to the Church and the religious life of the country by the litigation itself. The complainants, contending that these reasons were not sound, and that they showed that the bishop had not given the consideration to "the whole circumstances of the case" contemplated by the statute, applied to the Queen's Bench Division for a *mandamus* to the bishop to reconsider his decision. The question at issue turned upon the construction of the words of the statute—whether they confer on the bishop an absolute discretion. While the court were agreed that they gave a discretion of some sort, they were divided as to the extent of it. The Lord Chief Justice and Mr. Justice Manisty held that inasmuch as the bishop had to give his reasons for a refusal to entertain proceedings, the discretion given him was one which could be reviewed by a law court; Mr. Justice Pollock maintained that a discretion capable of review was not known to the law. The decision of the majority, as given by the Lord Chief Justice, was that the *mandamus* should be granted. The Lord Chief Justice in giving the decision declared that he thought it very mischievous that in such cases as this men honestly wanting to try whether a certain practice is or is not within the law of the Church "should be met by the simple will of the bishop, who tells them that the matter shall not even be discussed. . . . A dispensing power can not be lodged in hands entirely irresponsible. . . . Under the old law the bishop had this to say—that he was, in form, a party to the proceedings; that his office was being promoted, and there was some reason, therefore, under the Clergy Discipline Act, which dealt with procedure only, why he should still be allowed to say whether he would or would not permit his discipline to be enforced. Under the Public Worship Regulation Act this is not so. The bishop is not a party to the proceedings, and, therefore, unless there is some real reason capable of being clearly stated, the matter should be suffered to go on."

The Liberation Society.—The fifteenth Triennial Conference of the Liberation Society met in London, May 1. The Right Hon. James Stanfeld, M. P., presided. The society had received during the year £5,752, and had expended £5,492. It was claimed in the report that notwithstanding the "Irish question" had stood in the way of the society's agitation during the past three years, unmistakable indications existed of the progress of its principles. Among these indications were declarations of the Liberal Federations of England and Wales that disestablishment in Wales and Scotland should have a place among the immediate objects of the party. The movement for disestablishment had grown stronger in Wales since the last conference. For the first time a majority of the Scotch members had voted for disestablishment in their country; and at all the recent five Scotch by-elections disestablishers had been returned. On the question of national education, the society had uttered a warning concerning the report of the royal commission, and had organized the conference held in No-

vember, 1888, which had led to the formation of the National Education Association. Information had been collected and diffused relative to acts of persecution in the rural districts. The pressure of other parliamentary business had prevented the passage of measures desired by the society. Other measures intended to deprive Parliament of some of its authority over the Church were referred to as schemes that must be opposed. Resolutions were adopted urging continued efforts to defeat "reactionary" educational designs, and to secure the establishment of unsectarian schools under the control of popularly elected managers, affirming that no changes in the incidence or collection of tithes will remove the injustice attaching to the diversion of national property to ecclesiastical purposes; approving steps by the Executive Committee in view of "cases of intolerance and persecution" occurring in the rural parishes, to bring the influence of public opinion to bear against efforts "to effect by insidious methods that which previously was secured by repressive legislation"; urging friends of religious equality to labor to put an end to a system "which in many country parishes practically denies religious liberty to the inhabitants"; and objecting to any legislation calculated to diminish the control of Parliament over the Establishment.

English Church Union.—The thirtieth annual meeting of the English Church Union was held in London, June 27. Lord Halifax presided. The annual report showed that 5,870 communicants had joined the Union during the year, and that it now had 27,164 members. Reference was made to the prosecution of the Bishop of Lincoln and the condition of the Church in Wales. The better discharge of her own spiritual work was held up as the remedy against all the evils that affected the Church in Wales or elsewhere. Resolutions were adopted expressing the gratitude of the Union to the Bishop of Lincoln for "his maintenance of the ritual of the Church of England in accordance with the ancient canons and the rubrics of the Book of Common Prayer, and for his defense of the rights and liberties of the Church of England by his refusal to acknowledge the authority of the Judicial Committee in spiritual matters;" also, congratulating the Dean and Chapter of St. Paul's upon the erection in St. Paul's Cathedral of a reredos "so well calculated to bring before the minds of those who worship within the walls of that church the great evangelical doctrines of the incarnation and the atonement." Lord Halifax, in the course of his address as president, remarked that the trial of the Bishop of Lincoln involved the right of the Church of England to celebrate the holy communion in the old traditional way, sanctioned and enjoined in its main features by the whole of the Church. What was being attacked under cover of the present prosecution was not merely the doctrine of the real presence, but the whole of the sacramental system and that great revival of Catholic teaching and practice which had reinvigorated the Church of England. If those responsible for these unhappy prosecutions would but consider, they would surely see how groundless were the apprehensions which induced them to act as they did. All that was wanted to secure peace was explanation in the spirit of charity.

The insistence of the dogmatic principle and the essential features of a sacramental Church—the maintenance of the faith against heresy—that was their claim that day.

Church Defense Institution.—The annual meeting of the Church Defense Institution was held in Westminster, June 20. Lord Addington presided. The report referred to the motion of Mr. Dilwyn for the disestablishment of the Church in Wales, and expressed regret at the course that Mr. Gladstone had adopted in the matter in allying himself with the minority. The meeting declared its satisfaction that the motion had been defeated; and, observing the unfavorable reception accorded the new education code, expressed the trust that the Government would withdraw it, and that the changes proposed in the education bill of Mr. F. S. Powell might be accepted by the House of Commons.

Protestant Churchman's Alliance.—At a meeting of Churchmen held in Exeter Hall, June 19, a union was formed called the "Protestant Churchman's Alliance," to have branches in every diocese in England and Wales, the objects of which were declared to be:

To afford a basis of union and opportunities for consultation and concerted action for all Churchmen who desire to maintain the principles of the Reformation, the present Prayer-Book and Articles, and the acts of uniformity as their standards of doctrine and ritual, and especially the non-sacerdotal character of the ministry of the Church of England; to adopt whatever means may from time to time seem desirable to inform and instruct the public as to the true history and principles of the Church of England and the Book of Common Prayer as based on the teaching of God's Holy Word, with a view to secure and maintain their attachment to the Established Church, and to prevent the alienation of the people by the misrepresentation of her doctrine and discipline; to obtain by parliamentary action the abolition of the episcopal veto on suits for the maintenance and enforcement of the law; and in cases of contumacy to provide for summary deprivation, with a view, as far as possible, to avoid imprisonment; to make better provision for the furtherance of the above objects in Parliament and the press, and, while recognizing the comprehensiveness of the national Church, within the limits of her authorized standards, to deprecate and discountenance as inimical to her maintenance and defense whatever is taught or practiced in violation of the principles of the reformation, the directions of those standards, and the decisions of the Queen's courts thereon.

A provisional council, covering the whole country, was appointed to draw up rules and regulations for the government of the alliance; union in prayer for the maintenance of sound doctrine and spiritual worship was recommended; and measures were suggested for enlisting the sympathy and co-operation of the laity, especially of the workingmen, by the compilation and dissemination of literature, oral teaching, and every possible means "to explain to the people the Protestant character of the Church of England."

Congratulation to the Russian Church.—A letter of congratulation was addressed by the Archbishop of Canterbury, July 14, 1888, to the metropolitan of Kiev, on the occasion of the 900th anniversary of the conversion of Russia to Christianity. The archbishop felicitated the metropolitan on the benefits that the Russian Empire had derived from Christianity, and on

the fact that its civil jurisdiction and the Russian branch of the Church were coextensive; expressed regret that the meeting of the Lambeth Conference, demanding the undivided attention of all the Anglican bishops, would prevent any of them from participating in the ceremonies of the celebration of the anniversary, and added that—

The Russian and the Anglican Church have common foes. Alike we have to guard our independence against the Papal aggressiveness which claims to subordinate all the Churches of Christ to the See of Rome. Alike we have to protect our flocks from teachers of new and strange doctrines adverse to that holy faith which was handed down to us by the holy apostles and ancient fathers of the Catholic Church. But the weapons of our warfare are not carnal, and by mutual sympathy that we may one by one *ἐν τοῖς δεσμοῖς τοῦ Εὐαγγελίου* we shall encourage each other, and promote the salvation of all men. Praying, therefore, earnestly in the Spirit for the unity of all men in the faith of the Gospel laid down and expounded by the œcumenical councils of the undivided Church of Christ and in the living knowledge of the Son of God, we ever remain your Grace's most faithful and devoted servants and brother in the Lord.

EDW. CANTUAR.

At the festival (in Kiev) at which this letter was read, Mr. Pobedonostzeff, the Procurator of the Holy Synod, giving a toast to the Archbishop of Canterbury, bore witness in the name of the metropolitan and the assembled guests—

To the consolation which it afforded us to hear the contents of this letter, coming to us from a Church which heartily perceives in this our present festival the reality of our faith and of our religious and patriotic feelings. . . . It is not the first time that we have heard a Christian greeting from the midst of the English Church. It is with feelings of satisfaction that we recall to mind the fact that it was from England that a conscientious study and appreciation of the ancient Eastern, and of our Orthodox Russian Church was for the first time re-echoed back to us in the learned investigations of her ecclesiastical historians and theologians; it is from there, and perhaps from there only, that expressions of sympathy have reached us, and aspirations toward Christian communion with us.

The Church Congress.—The twenty-ninth annual meeting of the Church Congress was opened at Cardiff, Wales, Oct. 1. The Bishop of Llandaff presided. The agitation in Parliament and before the people for the disestablishment of the Church in Wales caused the subjects of episcopacy and the establishment in the principality to be the most prominent subjects discussed. The first day's sessions were occupied with the reading of papers on the Church's mode of dealing with rapidly growing populations; the respective merits of the division of parishes, the use of mission rooms, and lay co-operation; and community life for the clergy, in which Mr. Richard Foster, the Rev. Charles Mackeson, the Rev. Canons Terbutt and Medd, and the Bishop of Salisbury were the principal speakers; on the relations of Church and state, by the Dean of Manchester, the Rev. T. Hancock, Mr. Raikes, M. P., Postmaster-General, the Dean of Llandaff, and others, in which assertions were made that the Church, rather than dissent, was the victim of inequality from the operation of establishment; and "Church Finance and Clergy Pensions," by Mr. J. A. Doyle, the Rev. T. Warren Trevor, and others. The same general subject

was continued in the second day in papers on "The Church in Wales; its Past Progress, its Present Needs," by Mr. J. T. D. Llewellyn; "Increase of the Episcopate," by Mr. W. S. de Winton; "Parochial Missions," by the Rev. J. P. A. Bowers. Topics relating to public education were discussed in papers on "Elementary Education," in which Lord Norton and the Rev. J. R. Diggle, chairman of the London School Board, opposed the free, or gratuitous system; "The Proposals of the New Code," by Prebendary Roe; "Definite Religious Teaching," by Canon Evan Daniel and Canon Gregory, and the Rev. E. F. M. MacCarthy, Mr. Whitnill, school inspector, and other speakers; "Sunday Observance" was considered by Earl Beauchamp, Mr. G. F. Chambers, the Rev. Dr. Linklater, the Rev. C. E. T. Roberts, with voluntary addresses; "The Literature of the Day and its Attitude toward Christianity," by Sir G. C. Stokes, the Rev. J. M. Wilson, Mr. W. L. Courtney, the Rev. H. C. Shuttleworth, Mrs. De Courcy Laffan, with offered remarks; "Missions to Seamen," by Commander Dawson, R. N., the Rev. Charles Griffiths, the Rev. E. J. Wolfe, and the Bishop of Gibraltar; "Home Reunion," by Earl Nelson, the Dean of Peterborough, the Bishop of St. Asaph, the Dean of St. Asaph, and others; "Popular Amusements in Relation to the Christian Life," by Major Seton Churchill, Mr. Edward Terry, the Rev. H. A. James, Canon McClure, and Sir Lawrence Jones; "The Ministry of the Christian Church," considered under the heads of "The Witness of Holy Scripture," "The Witness of History," and "Orders in the Church of England," by Canon Luckock, the Rev. J. J. Lias, the Dean of Peterborough, Major Seton Churchill, with further discussions; "The Church's Duty with Regard to the Temporal Well-being of the Working Classes," by Canon Blackley, who explained a scheme of compulsory insurance, the Bishop of Bedford, Mr. H. W. Hill, the Rev. H. C. Shuttleworth, Miss Edith Barnett, the Rev. W. Morr Ede, and others; "The Church's Care of Children," considered under the head of "Waifs and Strays," by Mr. J. Trevarthen, "Children in Workhouses and Factories," by the Dean of Worcester and Mrs. Henry Kingsley, and "Boys who have left School," by the Rev. W. S. Carter, with voluntary addresses; "Continuation Schools and Intermediate Education," by the Hon. G. T. Kenyon, M. P., and Archdeacon Emery; "How to meet the Spiritual Needs of Young Men," by the Rev. V. S. S. Coles and voluntary speakers; "The Christian's Relationship (a) to God," by Canon Bulstrode, Archdeacon Norris, and Canon McCormick; "(b) to the Church," by the Rev. W. H. Hutchings; "(c) to the World," by the Rev. M. E. Welby, Rev. H. C. G. Moule, and Rev. C. J. Ridgeway; "The Reciprocal Relations between the Church at Home and its Foreign and Colonial Missions," by Sir John Kenneway, M. P., the Bishop of Ballarat, Archdeacon Farler, Bishop Barry, and the Bishop of Melanesia; and "The Linguistic Condition of Wales; its bearing on Church Work and Education, and the Difficulties arising from it," by the Dean of St. Asaph, the Archdeacon of Llandaff, Canon Bevan, and Mr. T. Morgan Owen, H. M. I.

The Church in Canada.—The Provincial Synod of Canada met in Montreal, Sept. 11. The

body meets triennially, and originally represented the entire Church of the Dominion; but the settlement of the Northwestern Territories has resulted in the erection of dioceses without its jurisdiction. Bishop Bond presided in the Upper House, the metropolitan having been prevented from being present. The Rev. John Langtry was chosen prolocutor of the Lower House. The Domestic and Foreign Missionary Society returned an increase for three years of \$81,315. A committee appointed three years previously to confer with other religious bodies respecting union reported the proceedings of a conference held in Toronto in April, 1889, at which the Methodist and Presbyterian Churches, as well as the Church of England, were represented. The subjects were considered of "Corporate Unity," "The Amount of Unity in Doctrine, Worship, and Modes of Action," "The Holy Scriptures," "The Creeds," and "The Administration of the Holy Sacraments." A hope was entertained that a basis of agreement might be arrived at regarding the first three points in the resolutions of the Lambeth Conference, namely, "As to the Holy Scriptures containing all things necessary to Salvation," "The Apostles' and Nicene Creeds as the Sufficient Statement of Christian Faith," and "The Two Sacraments," with the use of the words of Christ's institution and the elements ordained by him. The appointment of a joint committee for future conferences was recommended. The resolutions of the Synod having been presented to the Congregational Convention, that body insisted upon recognition of its ministerial orders as a condition precedent to union. A report on the "Incorporation of the Provincial Synod" showed that the Church had already the power to insure uniformity of procedure, canons, and discipline, and a united Church in the Dominion. Steps were taken and a committee was appointed to invite a conference of representatives of all the dioceses of British North America respecting the consolidation of the Church. Uniform Sunday-school lessons were recommended. Certain methods of obtaining money for Church purposes were condemned as "questionable." A canon was adopted directing the formation of a board of examiners to examine candidates for degrees in divinity.

APATITE, OR PHOSPHATE OF LIME, is the purest form of phosphate of calcium that is at the disposal of the manufacturer of fertilizers. It is a definite chemical compound, consisting of either $3(\text{Ca}_3\text{P}_2\text{O}_8)\text{CaF}_2$, known as fluor-apatite, or of $3(\text{Ca}_3\text{P}_2\text{O}_8)\text{CaCl}_2$, known as chlor-apatite, or else of the two united in indefinite proportion. It is produced, so far as known, only in Norway, Spain, Russia, and Canada. Phosphates differing from apatite are found elsewhere, the localities of which are given below. The Norwegian article is a chlor-apatite, found in primary rocks near Kragero, but the amount exported is very slight. The Spanish is a fluor-apatite, largely produced in Estramadura and the neighboring districts of Portugal. There are large deposits in Russia, between the Volga and the Desna, but very little is known respecting them. Canadian apatite is looked upon as the best in the trade, and, being more largely used than any other, is here fully described. The name apatite, taken from the Greek, and signifying "deceptive," ori-

ginated from the similarity it bears to certain other minerals, such as pyroxene, beryl, etc., for which it has frequently been mistaken. In its chemical composition it is a tricalcic phosphate, the formula of the Canadian product being $3\text{Ca}_3(\text{PO}_4)_2\text{CaF}_2$, showing the presence of calcium fluoride, which in much of the European product is replaced by calcium chloride. This makes the Canadian the richer of the two in phosphoric acid. It is found associated with granitoid gneiss, quartzite, pyroxenite, and crystalline limestone.

The Laurentian rocks of North America have for many years been known by mineralogists to contain apatite (commonly known as phosphate), sometimes disseminated in minute green crystals, sometimes sufficiently abundant to make up a large proportion of the rock. Of late years the increasing demand for phosphate as a fertilizer of the soil, in the prepared form of superphosphate, has excited much interest in the economic deposits of this mineral that have been discovered in Canada. It is also irregularly distributed through the New England States, but no effort has been there made to utilize it. The Laurentian rocks cover a vast area of Canada, both in Ontario and Quebec, extending from Labrador to the Arctic Ocean, skirting the north shore of the Ottawa river for nearly two hundred miles, and stretching thence down to the St. Lawrence, between Kingston and Brockville. The origin of these rocks is undecided, but they are generally conceded to be metamorphic. Their materials, deposited in palæozoic seas, are supposed to have been subjected to intense heat, vapor at high pressure, and eruptive overflows. As they have been thus metaphorphosed, and often much folded and contorted, their origin can only be guessed at by their stratification and chemical composition.

The various forms in which apatite presents itself are: 1, crystals, sometimes of large dimensions; 2, masses or irregular beds; 3, veins running with the stratifications; 4, strata of a lamellar texture; and 5, in a granular and friable form, fairly abundant, known as "sugar phosphate." The disturbed condition of the Laurentian rocks explains the irregularity of the apatite deposits, layers, and veins, which, before the great folding and kneading together of these rocks, may have possessed regularity and uniformity, but which have been dislocated in every sense, leading to the production of large "pockets" and irregular masses connected only by narrow and twisted seams, and even occupying completely isolated positions. The crystals consist of six-sided prisms, the usual color of which is blue or sea-green, while a few are brown, pink, yellow, or white. In the veins, beds, and pockets the same colors are met with, arising from impurities. The blue and green varieties contain scales of chlorite; the pink and brown, minute portions of hematite; while the yellow and white owe their tint to organic substances. The ordinary thickness of the beds varies from one to five feet. In some places they are entirely surrounded by dead rock, with a sharp line of demarkation, and in others it is hard to define where the phosphate ceases and the dead rock begins. The important question of the continuity of both veins and beds is occupying the

attention of the Geological Survey of Canada; for, although veins filling rock-fissures have been followed to a considerable depth, experience shows that different regions and different rocks afford great variations, and most of the workings are as yet comparatively superficial. The nature of the yield from veins is uncertain, being sometimes solid and pure apatite, and again only layers of the mineral mixed with calcite, pyroxene crystals, and magnesian mica. These latter constitute the principal impurities in the commercial article, calcite especially lowering the percentage of calcic phosphate, and acting injuriously when acid is applied for conversion into superphosphate.

The origin of this mineral is a matter of controversy, scientists holding different theories. Dr. G. M. Dawson, assistant director of the Canadian geological survey, suggests metamorphic action on the sedimentary deposits in the earliest ocean of which we have any trace; that these deposits, originally resembling those of later seas, have been so completely altered that their materials have entered into new combinations, and have become entirely crystalline, resembling the original deposits as little as do the crude ingredients of glass the finished product. The sedimentary origin of the Laurentian rocks, such as mussel mud, sand, and coprolite layers, would be changed by volcanic action to wholly crystalline rocks. To substantiate this—limestone thus acted on would assume a crystalline character as marble; peaty or coal substances would pass into crystalline carbon or graphite; and phosphatic layers would appear as crystalline calcic phosphate or apatite. All these substances are found in close contiguity in the apatite district. Dr. T. Sterry Hunt, who has made the Laurentian rocks his study for more than thirty years, looks upon them as the deposition of materials derived from the adjacent strata; and as apatite is closely associated with pyroxene, the latter may be, to a large extent, the source from which it is derived.

There are two districts in Canada that furnish this mineral. One is in the province of Quebec, in the county of Ottawa, where the chief deposits exist, in the townships of Templeton, Bowman, Derry, Portland, and Buckingham. A village of the latter name has come into publicity lying about twenty miles east of the city of Ottawa, as the point at which the mineral floated thence down the River Lievre, is shipped by rail. The other district is in the province of Ontario, and extends north from Kingston and Brockville, on the River St. Lawrence, in a belt through the counties of Leeds, Lanark, and Frontenac, comprising the townships of Burgess, Bedford, Crosby, Storrington, and Loughborough. This has not been much worked, except in the vicinity of Sharbot lake, near the line of the Canadian Pacific Railway. In both provinces the face of the country where apatite is found presents a succession of small, isolated, rounded, rocky hills, alternating with small lake-basins. With the demolition of the original forests, fire followed, destroying the undergrowth; and the layer of soil on this formation, being thin, was soon washed away by rain, leaving the bald rocky strata so exposed as to render the region sterile. The mining operations are very simple, and in some instances might rather be styled quarrying,

except at a few of the larger mines, where shafts have been sunk for underground workings. Steam-power for drilling and hoisting is employed, and trainways facilitate transport.

The magnitude of this industry appears from the following figures, taken from the "Trade and Navigation Reports" of Canada, showing the exports of the mineral for ten years: 1879-'80, 7,974 tons; 1880-'81, 15,601 tons; 1881-'82, 17,181 tons; 1882-'83, 14,478 tons; 1883-'84, 21,471 tons; 1884-'85, 18,984 tons; 1885-'86, 25,974 tons; 1886-'87, 23,943 tons; 1887-'88, 21,849 tons; 1888-'89, 23,158 tons. This shows an export of more than 190,000 tons in the ten years since the trade began. The market value varies with the purity of the article, and although a large quantity turns out 85 per cent. of tricalcic phosphate, the average yield of the Canadian apatite is officially calculated to be 72.62 per cent. A report of the United States Consul at Ottawa, in 1885, says that much of the material mined in Canada, sold and exported to Europe, has been, and is still, reshipped to the United States, either raw or manufactured, where it is used to aid in producing the very high grade superphosphate by firms in the Northern States. The reason assigned why Canadian phosphates thus cross the ocean twice is, probably, that, since American dealers were in the habit of importing from England before the Canada mines were developed very little effort has been made to turn the trade to a more direct course. The money basis taken in Europe is by the unit for phosphate that gives by analysis 75 per cent. of tricalcic phosphate, with an addition of one fifth of one penny sterling for each unit above that percentage. Thus, taking 1s. 2d. as the unit for that grade, a sample yielding 80 per cent. would be worth 1s. 3d., and while a ton of 75-per-cent. grade would bring 87s. 6d., one of 80 per cent. would command 100s., and 85 per cent. 113s. 4d. Prices continually fluctuate. When the material has been poorly dressed, the product will be of a low grade. From the rule adopted by foreign purchasers, the more careful the selection and dressing, the greater the profit. Low grades of 60 per cent. find a market in the pulverized or ground state at the fertilizer works in the Northern States, the result being brought up to a high grade by admixture with blood and offal. Other phosphates which are akin to apatite must not be confounded with it.

South Carolina phosphate, commonly known as "Charleston rock," occurs in rough masses associated with fossil bones and teeth; the river phosphate being dark gray, and the land phosphate pale brown. The former requires careful washing, as the cavities in it, being filled with sand, would otherwise deteriorate its quality. It is obtained by dredging Beaufort, Bull, Ashley, and other rivers, and is superior to that found on the land, the iron in the former existing as pyrites, while in the latter it assumes the form of ferric oxide. Carolina phosphate rates in commerce with the coprolite deposits of the greensand formation of the eastern coast of England and near Boulogne in France. Sombrero and Nevassa phosphate comes from the coral islands of the Caribbean Sea, and is known as rock guano. It is of high quality, but the predominance of alumina and iron prevents its

successful employment. The West Indian product is in reality a phosphate guano, which has accumulated and hardened in fissures and cracks and such parts of phosphatic matter as have penetrated in solution through the porous coral rock. Bordeaux phosphate, from the Ardennes region in the south of France, is of similar origin, taken from fissures traversing the Jurassic limestone plateaus that once probably formed an archipelago of bird-frequented islands in a Tertiary sea. Nassau, or German phosphate, from the valley of the Lahn, is a similar product. The following table, from analysis in Liverpool, shows the average percentage of tribasic phosphate in the yield from the various localities of production:

COUNTRIES.	Superior.	Ordinary.	Average.
Norway			77.90
Spain	72.87	62.59	67.73
Canada			72.62
South Carolina: Calcined ..			57.47
River			54.55
Land			53.54
England (coprolite)			55.90
Boulogne (coprolite)			44.50
West Indies: Sombrero ..	75.93	70.25	73.09
Nevassa			69.88
Bordeaux	75.97	65.53	70.75
Nassau	70.95	61.10	66.03

Shipments vary in percentage, running higher or lower than the average given above.

ARCHÆOLOGY. (America.) The Mound-Builders.—The inquiry into the origin of the mound-builders has been pursued by Dr. Cyrus Thomas in a paper on "The Problem of the Ohio Mounds." The author finds analogies between a number of these mounds and the relics found in them and certain works in Tennessee and North Carolina which it is agreed were executed by the Cherokees, whence he concludes that they were most probably made by the ancestors of that tribe. Ancient works related to those in Ohio are found in the Kanawha valley and other parts of West Virginia by the aid of which Dr. Thomas believes that he can trace the course of the mound-builders in their migration up the Kanawha valley and to the southward in the same line that the Cherokees appear to have followed in reaching their historical locality. He further suggests, on grounds which are given in his paper, that the Cherokees entered the immediate valley of the Mississippi from the northwest, striking it in the region of Iowa. Proof is also collated that the mound-building era had not closed previous to the discovery of the continent by Europeans. On the other hand, Prof. F. W. Putnam supposes that the mound-builders were driven northward, and their remnants are found in the Eskimos; while Dr. Patton believes that two different races immigrated from Asia, the mound-builders coming first, and the red men afterward. Evidences of ancient mining operations of considerable extent have been found in the copper district of Lake Superior, in the mica fields of North Carolina and the serpentine of the Alleghany mountains; and in lead veins, particularly near Lexington, Ky. From the evidence afforded by the growth of trees over these works, Prof. J. S. Newberry has determined that the copper workings on Lake Superior were abandoned not less than four hundred, and the lead

mine at Lexington not less than five hundred years ago, and that the mica and serpentine quarries are of corresponding antiquity. Traces of ancient workings of oil fields are met on Oil creek, Pa., in Mecca, Ohio, and at Enniskillen, Canada. The remains in the valley of Oil creek are described by Prof. Newberry as being shallow depressions in the ground resembling the pits caused by the overturning of forest trees, but symmetrical in shape. A well sunk in one of these pits exactly followed the course of an old well which had been cribbed with timber, and the ladder, consisting of a tree trunk with the stumps of the limbs projecting—like those often found in the old copper mines of Lake Superior—was still standing. The oil had apparently been collected by the method formerly used in the Caspian region of skimming from the surface of water. Prof. Newberry, while admitting that the authors of these works "were some members of the great American family of nations," can not agree with those who would regard them as the same as our modern nomadic Indian. They were, he thinks, not one, but many tribes, and but little advanced on the road to civilization; but differed from the present Indians in being far more sedentary, agricultural, and industrious. He can believe that the Mandans, Natches, and a few other tribes may be the descendants of the mound-builders, but not the Iroquois and Algonquins. Dr. S. D. Peet, of the "American Antiquarian," suggests that the inquiry should take the direction of learning whether there was not a difference in the periods of occupation and a diversity of migrations among the class of people whom we call Indians; whether the diversity which is acknowledged to exist in the works of the mound-builders is of foreign or autochthonous origin; and whether the succession of races or tribes on the same territory was rapid and caused by the crowding of one tribe upon another, or occurred after long periods of occupation. In his personal explorations in Wisconsin, Illinois, and Ohio, he has found abundant evidences of successive populations, plainly representing three or four different periods in the works. He assumes that more time than is usually granted should be given to the prevalence of the mound-builders. "We have all the period between the palæolithic age and the close of the neolithic age to fill up in some way, and know of no other way than to ascribe it all to the mound-builders."

The Casa Grande.—The Secretary of the Interior has directed that steps be taken at once, under the act of Congress of March 9, 1889, to repair and protect the ruins of the Casa Grande, in Pinal County, Arizona. According to the description given by the special agent of the department, the main building is 66 feet long and 43 feet wide, the first story is 13 feet high, the second story 9, and the third and fourth stories each 8 feet. The walls are between 4 and 5 feet thick, and are constructed of an almost indestructible concrete made of fine gravel, sand, and cement, laid in great blocks. The walls, both inside and out, were plastered with cement, which still clings to them, that on the inside being very smooth and glossy. All of the rooms, four of which are intact, are of a uniform buff color. The largest of the rooms is 34 feet by 9 feet, and

the building has an extreme height of nearly 40 feet. The lower story is filled with crumbling *débris* and the drifting sand of the plain to the height of 13 or 14 feet. The special agent's report mentions many great mounds, now hardly distinguishable from the desert sands, situated for miles around the Casa Grande, that mark what were once the abodes of men.

Ruins at Cochita.—The ruins of an extensive city, hitherto unknown, have been discovered by Mr. Amanda Chavez, at Cochita, on the American side of the Rio Grande. The site had the appearance of a huge swell in the prairie, destitute of vegetation. The existence of the ruins was revealed through the washing away by a heavy rain-storm of a part of the sand covering them. A large building with stone walls and a tower at each corner was exposed, having apparently a reservoir in the center, with which were connected aqueducts leading in several directions. Among the relics obtained from the site by the discoverer were a skeleton having brown hair, with three strands of beads—of turquoise, jet, and bone—around its neck, and ear-rings of jet and turquoise; arrow heads; and broken pottery. The skeleton had been inclosed in a chamber of masonry.

Ancient Image at Nampa, Idaho.—A unique relic was found in September, 1889, in boring an artesian well at Nampa, twenty miles from Boise City, Idaho, at about three hundred feet below the surface of the ground. As described by Prof. George Frederick Wright in the "Independent," it is a carved image of fine and rather soft pumice stone, about an inch and three quarters in length, and displaying considerable artistic skill. The position in which it was found and the geological structure of the ground are described by Prof. Wright as follows: "After penetrating the surface soil sixty feet, fifteen or twenty feet of lava rock was encountered. Below this for upward of two hundred feet there was nothing but alternate beds of quicksand and clay; then coarse sand was struck in which the image came up, then below was vegetable soil, and then sand rock. Thus it was evident that the image lay buried to a depth of about three hundred feet beneath the deposits which had accumulated in a lake formed by some ancient obstruction of the Snake river valley, and that over this accumulation there had been an overflow of lava sufficient to cover the whole and seal it up." The genuineness of the "find" is vouched for by all the persons who were present at the discovery—three educated and competent men of established character and in responsible positions—besides the driller and helper; besides which it was covered with a film of oxide of iron, such as would form only after long exposure under peculiar conditions, and small particles of sand have been cemented into the crevice between the arm and the body. The image has been seen by Profs. H. W. Haynes and F. W. Putnam, of the Archæological Museum at Cambridge, as well as by Prof. Wright, and the evidence and the correspondence respecting it have been fully canvassed by them and reviewed in the Boston Society of Natural History. It will be recollected that Prof. Whitney many years ago reported the discovery of a skull called "the Calaveras skull" and implements of human work-

manship in a somewhat similar situation beneath the lava in California; and that European archæologists were slow to accept the discovery as genuine. The present discovery comes to



FIG. 1.—IMAGE FOUND IN IDAHO.

confirm it. "The high degree of art displayed by the image," Prof. Wright remarks, in his account, "is noteworthy. It is not the work of a boy or of a novice. The proportions are perfect, and there is a pose of the body that differentiates it from anything that has been found among the relics of the mound-builders. Altogether, it supports the hypothesis of Prof. Putnam set forth some years ago, that civilization advanced on the Pacific coast long in advance of that which has anywhere else been discovered." The precise geological age of the relic has not been determined; but Mr. Emmons of the United States Geological Survey, who is more familiar than any other geologist with the region, has expressed the opinion (subject, however, to correction), that the strata in which it lay are "probably of far greater antiquity than any deposits in which human implements have hitherto been discovered."

International Congress of Americanists.

—The seventh International Congress of Americanists met in Berlin, Oct. 2, 1888. Dr. Reiss, of Berlin, was chosen president, and Prof. E. S. Morse represented the United States in the list of vice-presidents. The first of the regular papers was on the origin of the name America—concerning which a theory of native derivation has lately been broached by M. Jules Marcou and others—by Signor Guido Cora, of Italy. The author was not ready to pronounce definitely on the subject, for various recent investigations had left it uncertain whether the name was native or imported. Señor Fabié, of Spain, supported the old theory of derivation from Amerigo Vespucci. The origin and use of the American specimens of the objects called *agripearls* was discussed. They were formerly regarded as peculiar to the Old World, but had recently been found in America. It seemed to be agreed that they had been brought from Europe. Some ancient Mexican decorations upon human bones were described by M. Andrée as showing a high development of technic and taste. Only eighteen pieces of the kind are known, and these have been placed in European collections. Some of them are masks worked out of real skulls or of wood, while others are figures of animals, etc. The mosaic is composed of small pieces of turquoise, malachite, or mussel shell, pressed into a foundation of pitch,

forming some kind of design or representing in colored shadings the forms of the human face. A skull-mask of the kind in the Berlin Museum comprises the head of a puma and a figure composed of the fore parts of the animals. Prof. E. S. Morse read a paper by Mr. F. H. Cushing concerning the work of the Hemenway Archaeological Expedition in Arizona, where traces of several cities and irrigation works and often evidence of the former existence of populous settlements have been found. Senhor Netto, of Brazil, described a series of mounds giving an elliptical ground plan with a head-shaped annex in which he had found relics of a people who might be distinguished from the present Indians chiefly by the prominence of female influence among them. Signor Arzruni mentioned in a discussion on the present condition of knowledge respecting nephrite and jadeite that the famous Humboldt axe and another South American hatchet seem to be identical in substance with the European mineral, and a hatchet from Venezuela with one from Hissarlik. The anthropological classification of the native Americans was discussed by Prof. Virchow and Herr Fritsch. Prof. Virchow admitted that it would not do to speak of a primitive race; yet the ancient skulls are predominantly of a brachycephalic type. These forms seem to have persisted in the south to the present time, but in the north there has been a noticeable transition to long and medium forms. Herr Fritsch, making the types of hair a basis of distinction, would assign the Central Americans and, generally, the ancient civilized peoples of South America to a group having smooth or waving, moderately long brown hair, like that of the Polynesians; and the northwestern tribes, with those of single districts in the South, to a group with coarse, stiff hair, inclining to deep black, like that of the Mongols. Herr Nehring spoke of the domesticated animals of the ancient Peruvians. He remarked that the subject was of scientific importance because the other peoples of ancient America were poor in property of this kind as compared with these people and the Bolivians and some among the Central Americans, and because the influence of domestication on the formation of races could be better followed on these animals than on those of the old world. The animals were the dog, llama, alpaca, and Guinea-pig. Among eighteen mummified dogs from Peruvian graves examined by the speaker, types were found of a shepherd's dog, a *dachshund*, and a bull-dog or pug. Herr Wittmack described the useful plants of Peru, from traces found in the graves. The bread-plant was maize, which is represented on the sculptures and architectural ornaments of the people; a *chenopodium* and two kinds of pulse were used; and small tubers, like potatoes, but which could not be determined, and fruits of annatto had been observed in the graves. The researches of Herr Hartmann had indicated to him that the people of Mexico in the time of Montezuma possessed the same physical race characteristics as are exhibited by the present Dakotas, Pawnees, Comanches, etc. The Araucanians, Patagonians, and Fuegians might also be regarded as related to the Aztecs. The Chibchas of Colombia, instead of being an immemorably isolated people, as according to the current belief, appeared to the

speaker to have had near relatives in the people of Costa Rica and Northern Colombia; and people of Chibcha and Mexican origin met in Costa Rica. A paper was read by Herr Uhle on the primitive history and wanderings of the Chibchas. Other papers were read by Messrs. Borsari, on the constructions of the ancient Peruvians; Müller, on the Sambakis of Brazil, who had a prehistoric civilization; Von den Steinen, on his second journey to the Xingu and the confirmation of his previous conclusions respecting the relationship of the Tupi and the Caribs and on the calendar stone and various Mexican and Central American relics. M. Hamy exposed some falsifications of American antiquities which have become numerous and systematic. (For further revelations in American archaeology, see special article CAVE DRAWINGS.)

Rome. Summary of Recent Results.—Signor R. Lanciani, in his comprehensive account of the excavations conducted at Rome under his official direction and their results ("Ancient Rome in the Light of Recent Discoveries"), describes among the immense number of relics of the past which have been uncovered, an archaeological stratum hitherto unknown, consisting of antiquities of the prehistoric and traditional age. It is, however, very incomplete, because Rome has always been rebuilding itself out of the ruins of preceding periods; yet, on the whole, he says, "it is wonderful that so much should still be left of the works raised by the ancients after a process of destruction and transformation that has been going on for fourteen centuries." Discoveries lately made on the Alban hills are cited by Prof. Lanciani as supporting the theory that Rome was founded by peasants from Alba, who were driven away by fear of volcanic action there, and militating against the view of an Etruscan origin. The name of Rome is derived by the author, from Rumon, a river, and was intended to designate its situation as a river town, in contrast to the hill towns. The name of Romulus is believed, in the light of recent philological discoveries, to be a genuine one, and to belong to the founder of the city. The only evidence as to the time when Rome was built corresponds with that afforded by recent discoveries, which would place Alba in the bronze age. Among the principal works of art discovered since 1870 are enumerated "two bronze athletes found on the slope of the Quirinal, the bronze Bacchus of the Tiber, the Juno of the Palatine, the bas-reliefs of the Forum, and the four hundred and seventy-nine busts brought together by the municipality. Other discoveries of importance, most of which have been mentioned in the previous volume of the "Annual Cyclopaedia," are the house of the vestal virgins, with fifteen marble pedestals, eleven life-size statues, fragments of statues, eulogistic and historical inscriptions, and many busts and portrait heads, coins, and fragments; and the barracks of the *vigiles*, or police, the luxuriant ornamentation of which shows that these officers were a higher class of functionaries than common watchmen.

An Etruscan tomb, opened at Orvieto, in June, contained many bronze ornaments, arms of iron, Corinthian vases, and others of local manufacture. A series of Etruscan paintings on slabs of

terra-cotta, found at Coere, in 1874, and lately acquired by the British Museum, are assigned by Mr. A. S. Murray to a date of about 500 B. C. Mr. Murray traces in them a combined influence of Corinth, of the Greeks who were settled in the Delta of Egypt and the Greeks in Asia Minor, and ultimately an influence reaching westward from Assyria. The last is noticed especially in certain conventional matters, such as the drawing of profiles of the eye and of the knee-bones; not a little of the costume, on the other hand, indicates an Etruscan origin. Seven Vulcian tombs, recently discovered at Corneto-Tarquiniæ, contained Etruscan and Campanian vases, with others imported from Attica.

Many relics of Roman operations have been recovered from the Rio Tinto mines. The most important of them is the tread-mill for raising water, the wood work of which has been well preserved by the action of the copper in solution. Instead of leaning on bars, as in the modern tread-mill, the slaves appear to have held on to ropes like bell-ropes, parts of which remain. The wheel, $4\frac{1}{2}$ metres in diameter, was so constructed as to utilize the weight of the men very skilfully. The pickaxes are modern in shape, and another tool is like the hoe-like spade of the Spaniards. Other objects found include the fetters, collars, and anklets of the slaves, specimens of pottery and glass, "herring-bone work," bronze urns, stamped pigs and a tube of lead, and four capitals of columns representing the Roman town. Stone hammer-heads, with depressions in the center for handles, and stone pestles and mortars attest still earlier workings than those of the Romans.

Greece. Completion of Excavations on the Acropolis at Athens.—The first place in the report of the Hellenic Society, which was made by Prof. Jebb at its annual meeting, June 24, was given to the researches which had been prosecuted in Greece itself, partly by the Greek Government, partly by the Greek Archæological Society and the foreign schools. The excavations on the Acropolis of Athens, which began from the Propylæa and were continued eastward to the north of the Parthenon, had been brought back along the south side of that structure so as again to reach the Propylæa. The entire area of the Acropolis had thus been thoroughly explored down to the bed of rock. The gains of the last twelve months from this work fell under the heads of topography and architecture, sculpture and inscriptions. Further light had been thrown on the prehistoric fortifications of the Acropolis. New fragments of the primitive Acropolis wall, which encircled the summit of the primitive citadel, had been laid bare, and in one place, at the southeast corner of the Propylæa, it was seen to have been nearly twenty feet thick. Between the Parthenon and the south edge of the Acropolis, traces had been found of a rude, oblong building, constructed partly with the drums of columns rejected, apparently, by the builders of that earlier temple, never completed, which was superseded by the Parthenon. This oblong building seemed to have been covered over with earth when the Parthenon was finished, and might have been a workshop used by the builders. West of the Parthenon, a large chamber, about 130 feet by 50 feet, with a portico facing

northward, had been traced by its foundations. It may have been the *χαλκοθήκη* used as a repository for arms and stores. If so, that building did not belong, as had been supposed, to the *temenos* of Athena Erganè. In the same part of the Acropolis area, west of the Parthenon, the *temenos* of Artemis Beaurénia had been more accurately defined by the traces of the porticoes that bounded it on the south and east. Within the Parthenon itself excavations had been carried on with a view to ascertaining whether the basis of the temple was a solid mass of stone, or consisted of foundation walls with rubble filling the spaces between them. The results were not decisive, but they showed that the solid stone basis went at least some distance beneath the pavement. Fragments had been recovered from architectural groups, which once adorned the pediments of older temples on the Acropolis—temples probably destroyed by the Persians in 480 B. C., and found buried between the basis of the Parthenon and the limestone wall to the south of it. Some sculptures of the best time had been recovered. Among the inscriptions found on the Acropolis was a copy of a decree conferring certain privileges on the Samians in recognition of their fidelity to Athens amid her disasters at the end of the Peloponnesian War. Another inscription related to the purchase of materials for the chryselaphantine statue of Athené Parthenos.

Among the objects discovered in the later stages of the excavations of the Acropolis, the head of Iris in the frieze of the Parthenon, which joins on to the block with Zeus and Hera in the British Museum, and the halves of two great pediments of Poros stone, one representing the struggle between Herakles and the Old Man of the Sea, and the other containing a monstrous figure of three blue-bearded men together, ending in three snaky tails which, coiled together, filled one corner of the pediment, are mentioned by Mr. Gardiner as of more particular interest. The outside figure on each side of the last design had also one wing. A marble head with torso, found at Ammorgos, resembles the "Melian Zeus" in the British Museum; but, bearing a snake in the right hand and resembling in other respects an Asclepias from Epidaurus, is assigned to that god. This suggests the possibility of the "Melian Zeus" also being an Asclepias.

The Older Temple at Ephesus.—From a number of fragments discovered under the temple of Artemis, at Ephesus—the one that was built in the time of Alexander the Great—Mr. A. S. Murray has been able to reconstruct a column and part of the cornice of the older temple that had been destroyed by fire. Between the lions' heads, which served as spouts for the rain that collected on the roof, the cornice had been decorated with elaborate sculptured groups, one of which represented the combat of a Lapith and a Centaur. The lowermost drum of the column was sculptured with relief, while the rest of the shaft was fluted. On a torus molding underneath this sculptured drum were remains of an inscription recording a dedication by Cræsus, King of Lydia, partly at whose expense, according to Herodotus, the temple was built. Fragments enough were left of the capital to per-

mit the reconstruction of a work resembling in many respects the capital of the archaic temple at Samos.

Other Explorations.—Excavations were begun by the French Archæological School, in the autumn of 1888, in the Temple of the Muses at Helicon, which appears to have been an amphiprostyle of four Ionic columns, like the Temple of Victory on the Acropolis. It had been rebuilt in Roman times. While the discoveries of objects of art at the time when the works were closed for the winter had not been very important, a large number of inscriptions were found—chiefly dedicatory, and among them an epigram in verse.

Dr. Schliemann was in treaty at the beginning of the year for the purchase of a hillock named Kepháloton Tshelebi, on the site of the ancient city of Cnossos, in Crete, which is believed to have been a public building of a remote epoch. All that could be seen of it at the time were some very thick walls of the local gypsum, which were partially disinterred by the Spanish vice-consul, M. Calocherinós, in 1877. Some of the stones bear figures of ancient characters, probably mason's marks. The form of the building appears to be rectangular, about forty-four metres by fifty-five, and the walls and mode of construction exhibit points of resemblance with the prehistoric palace of Tiryns.

The *peribolos* of the temple of Artemis Orthia, on the hill of Lycone, near Argos, has been excavated by the head-master of the gymnasium of Nauplia so as to reveal the plan of the structure and expose a mosaic floor in the inclosed portion of the sanctuary, one half of which was formed of large pieces and the other half of small ones. Fragments of the building were found within and without the structure, and fragments belonging to a great statue, which are regarded as being remains of one of the statues of Apollo, Artemis, and Leto—works of Polycleitus—which, according to Pausanias, adorned the temple. A well-preserved torso of a female statue in marble, of admirable workmanship, was found on the east side of the *peribolos*. Three Muses of the Roman period were found, showing that the sanctuary was visited and prosperous till the middle of the fourth century, A. D. In one of the tombs explored by Dr. Tsoudras at Mycenæ have been found various objects of ivory, and among them two cylinders of unknown use. One of these is covered with ornamental circles in relief composed of shell-fish. Other ivory ornaments are the upper part of the body of a woman, holding in her left hand a branch or flower, also in relief; the lower part of the body of a woman, seated; and a small plaque, preserved entire, on which is a Sphinx in relief.

In the exploration of the Dromos at Vaphio, not far from the ancient Amyclæ, an unroofed grave of a woman was found, in which were two cups of gold and one of silver, adorned with representations of men, cattle, and trees; three gold rings and ladies' needles of silvered bronze with heads of amethyst; fine toothpicks and ear-picks; a necklace of some ninety amethysts and another necklace of sardonyxes and agates, the stones of which were engraved with representations of men, oxen, and birds, and other articles.

In digging among the foundations of ancient

buildings on the site of the ancient Corcyra, there were found a little cylindrical *stela*, objects of terra-cotta, and a number of statuettes, mostly female figures of various sizes—temple offerings—the belongings to which apparently indicated the site of a temple of Artemis, although no temple of that goddess is mentioned in descriptions of the island.

A group of three grottoes connected by underground openings, at Aphrata, Crete, contained graves in which were earthen vases, bronze kettles, and other objects. In the ancient Eretria, in Eubœa, have been found two bronze mirrors of beautiful workmanship, one bearing a relief of the abduction of Orithyia by Boreas, and the other of a Venus; and two archaic semi-white *lecythi*, one of which depicts Herakles carrying on his shoulders the vault of the heavens, which he has for the time taken over for Atlas, while Atlas is bringing him the apple of the Hesperides. The other *lecythus* is ornamented with a picture of Circe offering Ulysses a fatal potion, which the hero declines. One of his companions has already been turned into a pig.

Dr. Dorpfeld, Secretary of the German Archæological Institute at Athens, some years ago pointed out a similarity between the remains found in Tiryns with those of Carthage and other African colonies of the Phœnicians. He added to this, at a recent meeting of his Institute, that he might go further and point out analogies between the Megaron at Tiryns and Solomon's temple.

In excavating at Delos, MM. Doublet and Legendre, of the French school, have discovered two statues of women and the bronze foot of a Roman statue, with several inscriptions, among them being one of more than a hundred lines, containing the account of expenses relating to the table.

Cyprus.—The agents of the British Archæological School at Athens reported, at the annual meeting, July 10, concerning work at two sites in Cyprus—Poli tes Chrysochou, the supposed site of the ancient Arsinoë, and Limniti. The results of the excavations at Poli had hardly been so striking as those obtained in the previous year at Paphos, but, taken as a whole, the finds in Cypriot inscriptions and in works of art of various styles and periods—more especially in pottery and terra-cotta—were of very considerable interest. In the tombs, of which about twenty were opened, were found a great quantity of Cypriot pottery; black glazed ware; terra-cotta figures, mostly of poor workmanship; objects of bronze and iron, such as strigils, knives, and mirrors; alabastra; vases of various styles; glass; a little jewelry; and two inscriptions in Cypriot characters. Although the large majority of tombs opened seemed to be Ptolemaic, some appeared to be reconstructions of older sepulchres. Among the objects found were “several black-figured *cylices*, dating from about 500 B. C.; fragments of a red-figured vase, colored white and gold in parts, and of two or three red-figured fifth-century vases; and the upper half of a large inscribed marble *stela*, with the head and shoulders of a male figure of fair style. The find of Cypriot pottery was large, and the vases with figurines were numerous, the best of them being one with elaborate patterns in dull purple-black on the ruddy ground of the natural clay. The jewelry was more plentiful than good; but a

pair of silver-plated bracelets with gilt rams' heads and an engraved hematite scarab deserve mention. Two probably early limestone capitals may also be noticed." Additions were made to the materials for the study of Cypriot epigraphy.

Detailed accounts of the work carried on by the Cyprus Exploration Fund during the two seasons in which its operations have been prosecuted, have been published in the "Journal of Hellenic Studies." The antiquities obtained have been distributed between the British Museum, the Universities of Oxford and Cambridge, various public schools, and other institutions. The committee propose, in continuing the work, to begin during the next season 1889-'90, a thorough exploration of the ruins of Salamis. Among the considerations by which the choice of this site has been determined are that it was the largest and most important city of Cyprus; its foundation is ascribed by a constant legend to Teucer, who crossed from Asia Minor to Carpass; it was a royal city in the eighth century B. C., and from that period till the end of the fourth century ruled over a tract of country more extensive and fertile than that possessed by any other town; it was never Phœnician, but obtained a Hellenic character under the influence of Evagoras, and from that period until late Byzantine times was the center of civilization in the island; its great shrine of Zeus was accounted of equal splendor with that of Aphrodite at Paphos.

Persian.—Special galleries have been allotted in the Museum of the Louvre to the relics

and second centuries of the Christian era. The second hall contains the two-headed capital, graven stones, and epigraphic documents. A base of a column, supposed to be from the palace of Darius, is represented in Figure 2. Figure 3



FIG. 3.—ENAMELED BRICK OF THE SAME PERIOD.

represents one of the enameled bricks of which the explorers have brought back many fragments, in the enameling of which turquoise blue generally predominates. The fourth figure is a little

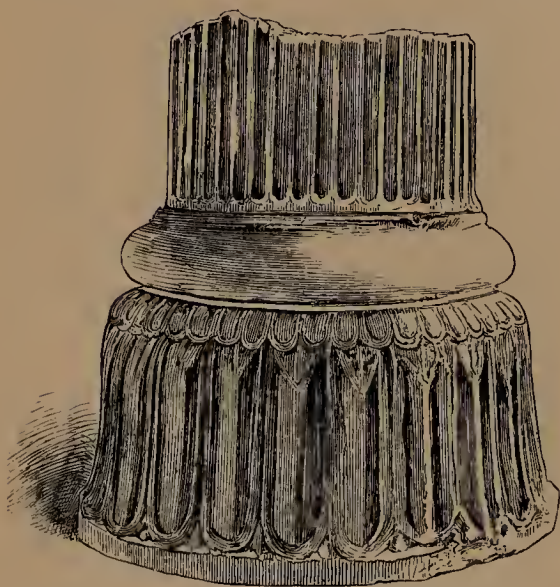


FIG. 2.—BASE OF A COLUMN OF THE ACHEMENIAN PERIOD.

which M. and Madame Dieulafoy have recovered during their three tours of exploration in Susiana (see "Annual Cyclopaedia" for 1886). The collections are arranged in two groups. In a first hall are exhibited the sculptures of the archers of the Royal Guard, the lions, the steps of the staircases, the rich enamels from the royal palaces, tiles belonging to the horizontal facings of a grand stairway, and funeral urns of the first



FIG. 4.—FIRE-ALTAR IN ENAMELED WARE OF THE PARTHIAN EPOCH.

fire altar in blue-enameled ware of the Parthian or Sassanian epoch. It was only about sixteen inches high, and is supposed to have been used in

domestic devotion. Besides the monumental remains, the excavations have yielded large numbers of objects in ivory, bronze, alabaster, and earthenware. Among them are Chaldean, Elamite, and Persian seals, in hard stone, that fill two cases in the museum. They are usually very finely engraved. Figure 5 reproduces in relief, the engraving of an archaic Chaldean cylinder of dio-



FIG. 5.—CHALDEAN CYLINDER IN DIORITE, REPRESENTING AN OFFERING.

rite, representing an offering, with an archaic inscription. A two-headed capital of great dimensions from the palace of Artaxerxes is complete, some parts of it being almost as well preserved as if they were of yesterday. The bulls are regarded as exceptionally fine specimens of ornamental sculpture. A complete model of the palace of Darius is under execution for the Susian galleries. The importance of this monument is set forth in the following description by M. Dieulafoy :

The royal constructions were elevated upon a nearly rectangular platform about 17 or 18 metres high, rising clear upon the Elamite tumulus. The northern coast of the defenses was brought to a level with the floor of the palace, so that the sovereign could from the threshold of his house view the whole chain of the Baktyaris mountains and the plain and city of Susa. The southern face of the platform of the Apadana formed one of the sides of the parade-ground between the citadel and what is called the Elamite mound. The chief entrance to the parade-ground was situated on a line with the axis of the throne-room on the east and at the foot of the walls of the citadel. Without considering the lateral constructions, all anterior to Darius, we will pass over this gate and direct ourselves toward the palace of Artaxerxes. In front rises a gigantic staircase, occupying the center of the southern face of the Achemenidian platform and resting with its lateral extremities on two towers attached to the fortifications. Like the staircase of the Takhté Jemehid, it is composed of four flights grouped into two systems. Ascending the steps, which were gradual enough to be climbed by a horse, we reach the outer court, which is bounded on the east and the west by the ramparts. The middle of the aisles is occupied by hypostyle porticoes decorated by fanciful animals. In front of the staircase, a wide bay opens itself, which is included between two piers like the pylons of the portico Viçadayon at Persepolis. The Susian pylons were covered with white and rose mosaic and topped with the magnificent procession of lions. Before crossing the threshold of the second court, we perceived the throne-hall, open like the *talars* of the Persian palaces.

The Apadana was isolated from all the surrounding buildings; on the south by the inner court; on the east and west by a ditch 22 metres broad, at the bottom of which, on a firmly built roadway of gentle grade, rolled the royal chariots in going up from the plain to the palace. On the east, looking toward the throne-hall, was a newer portico, commanding the entrance to a second staircase and the road laid out on the ramparts for the use of the king when going

from the harem on the Elamite tumulus to his official apartments. I sought in vain for a third staircase which was demanded by the arrangement of the plan. It had been completely destroyed. But traces of the substructure of a portico symmetrical with the eastern one were found on the west of the Apadana.

The three colonnades of the palace and their bicapalous pillars might escape the notice of visitors unless they should perceive them through the large bays at their ends. Otherwise one might spend all the time admiring the elegance and majesty of the porticoes before penetrating into the royal inclosure. The throne-hall dominated the fortifications on the north by its whole height, and upon that grand pedestal offered itself to the pious admiration of the people of Elam. . . . The isolation of the colonnades, their exceptional prominence, and their brilliant ornamentation, indicate that the king reserved to himself the exclusive use of that part of his palace. Of all the prerogatives attached to the sovereign power this was the most enviable, for one could not dream of a spectacle comparable with that which unfolded itself before the eyes of the sovereign when from his throne he beheld Susiana laid out at his feet.

Syrian.—Three inscriptions of series, discovered at El Heiyat in the Hauran, relate the dedication by Proklos, the son of Aumos, of a Ganymede, a Hermes, and an Aphrodite, for each of his two sons and his daughter respectively. The name of the divinity is not given, but two parallel Phœnician inscriptions found at a site south-east of Tyre records similar dedications to Moloch Astarte and to the Lord Baal of the heavens. The inscriptions show that traces of the ancient worship of Baal survived down to near the time of Christianity and suggest how the ancient devotion of the children themselves as sacrifices to the God yielded to the substitution of figures resembling them and bearing the names of divinities to whom they might be likened.

Assyrian and Babylonian. The Earlier Babylonian Dynasties.—Mr. G. Bertin, seeking to retrace the earlier Babylonian dynasties from the cuneiform tablets in the British Museum, has found a series of Semitic and Akkadian kings, of whom the names only until the time of Sargon are known, while their dates are uncertain. The Babylonians placed the beginning of the historical period at the time of the first Kassite invasion under Hammurabi I, 6200 B. C. The second Kassite dynasty was succeeded by a Semitic period, B. C. 4000 to 2371, during which the cities the remains of which have been explored were predominant.

Amraphel, King of Shinar.—The date of King Hammurabi, the sixth ruler in the first Babylonian dynasty, who is identified by Dr. Schrader with the biblical Amraphel of Shinar, one of the four kings against five, appears to be fixed by a cylinder of Nabonidus, relating to the rebuilding of the temple Bit-Samas. The inscription relates that a strong wind blowing away the mud disclosed the foundation stone of the temple, and made visible "the writing of the name" of Hammurabi, the old king, who seven hundred years before Burnaburyas, had erected Bit-Samas and the tower over the old foundation for Samas."

The era of Burnaburyas is fixed by the synchronistic history and the tablets of Tell-el Amama in the first half or not later than the middle of the fifteenth century, B. C. Adding seven hundred years to this, would give the date of Hammurabi, and also of Abraham, whose contemporary he was, as, in round numbers, 2150. The results of the recent studies of Dr. Jules Oppert have led him to fix the era of Hammurabi some two centuries earlier than this, or from 2394 to 2339 B. C. Unless, therefore, there were another Burnaburyas of whom there is no historical indication the date of Khuen-Aten will have also to be set back two hundred years. Such an adjustment of the chronology would allow ample time for the four hundred years of the sojourn of the Israelites in Egypt and for the four hundred and eighty years from the exodus to the beginning of Solomon's temple.

Babylonian and Hebrew Analogies.—An analogy has been found by Mr. W. St. C. Boscawen between the Cherubim with flaming swords whom the Lord set to guard the gate of Eden and the scorpion-men, "consuming in their terribleness and their aspect of death," that the hero Ghizdubar found guarding the gates of the sun at the mountains of Masu. As in the narrative of the Garden of Eden, beyond these scorpion-men lay a beautiful garden which is described as "equal to the trees of the gods in aspect, . . . bearing emeralds as its fruit, . . . where branches bend not to uphold the crystal covering they bear as foliage," and "pleasant to the sight"—just as the Garden of Eden—contained "every tree that is pleasant to the sight and good for food." The guardians of the garden also exclude Ghizdubar from it and prevent his reaching the tree of Life.

Mr. Theodore G. Pinches, of the department of Assyrian antiquities in the British Museum, declares that he has recognized in certain Assyrian and Babylonian proper names elements representing the Hebrew Ya and Yaveh. These people were thus acquainted with the Hebrew Jehovah and recognized his divinity, as they did that of other foreign gods; and the occurrence of such combinations as Assur-Aa, Nergal Aa, Samas-Aa—Assur is Ya, Nergal is Ya, Samas is Ya—etc., identified some of their deities of foreign origin with Ya, as different manifestations of one god. From other features in the structure of these names the author concludes that the Assyrians employed Ya from the earliest time as a word common to them and their kindred and neighbors, and became acquainted with Yaveh at a later period.

Egypt. Pyramids of Hawára and Illahún.—Mr. W. F. Petrie began the exploration of the pyramid of Hawára, which stands by the supposed site of the Labyrinth, in the season of 1887-'88, and succeeded during that season in tunneling a passage from the north face of the structure as far as the stone casing of the central chamber, which proved to be so massive as to resist all his efforts. Returning to the work in November, 1888, he made various trial excavations at points round the base of the pyramid, in hopes of discovering the original entrance. It was not found. Then masons were employed to quarry down through the roof of the central chamber, and three weeks were spent in cutting

a small vertical shaft through the fifteen thicknesses of stone. From the central chamber the clew to the original entrance was disclosed. It was from a point outside the pyramid, and apparently at some distance from it. The passage, which is underground, strikes the south side of the pyramid at some distance from the southwest corner, and is intricate in its windings. According to Mr. Petrie's description:

It does not run straight into the chamber, but slopes down northward for some distance. Then a branch passage leads eastward, the main line continuing on, as a blind. The branch passage (still going eastward) ends blank, but the issue from it is by a large trap-door in the roof. This trap-door opens into an upper passage leading north, which presently turns off to the west. Here it again ends blank, and another roof-trap gives access to another upper passage running farther west. This passage ends in a well leading to a short passage southward, which ends in another well now full of water. This well, I imagine, must lead to another short passage going eastward, whence a last well would ascend into the chamber.

The chamber had been entered through a forced opening made from the second roof-trap into the sepulchral chamber, and whatever of portable value it contained had been carried away. There were evidences also of fire, and it is supposed that the mummies and their cases had been burned. Remains of Roman amphoræ indicate that the violation of the tomb had been committed at least as early as the Roman dominion. The chamber measured inside 22 feet by 8 feet. The floor and the four sides up to a height of 6 feet (inside measurement) had been hollowed out of a single block of sandstone. The chamber contains one large and one smaller sarcophagus of polished sandstone both plain and uninscribed, the base of the larger one being bordered by a projecting plinth decorated with paneled ornaments. The second sarcophagus had been contrived by the insertion of a head and a foot slab between the large one and the wall, and had been closed by a narrow lid. It appears to have been an afterthought. There were also two boxes of polished limestone in the chamber decorated around the base with the same paneling as the large sarcophagus. Many fragments of alabaster vases and bowls were found, some inscribed, others not, representing the funeral vessels of the buried Pharaoh. One of these bore the throne name of Amenemhat III, confirming the other circumstances that contribute to identify the pyramid with the tomb of that king. The smaller sarcophagus was found to belong to the Princess Ptahnefru, daughter of Amenemhat III. This was established by the inscriptions on two objects that were found in the passages. One was an alabaster vessel, 18 inches in length, carved in the shape of a trussed duck, on which was engraved the hieroglyphic legend, "The royal daughter Ptahnefru." The other was an alabaster table of offerings, surrounded by fragments of nine alabaster duck-vases. It is a rectangular block, 26½ inches long by 16 inches broad and 9 inches thick, bordered by a funerary invocation of the ordinary type, praying for oblations of food and drink for the "Ka" of the royal daughter Ptahnefru, while the inclosed surface is carved in low relief with 110 miniature representations of vases, bowls, cups, plates, loaves,

cakes, birds, fruits, and the like. Each object has its name engraved beside or above it, thus giving a list of between seventy and eighty varieties of wines, poultry, cakes, etc., and the complete schedule of a royal funerary feast of the period. It is remarked that the ducks, geese, and other birds are represented without legs. Except for a flake off from one corner, this block is perfectly preserved. The discovery of calcined fragments of quartz and mica, together with a lapis lazuli inlay carved in the form of a false beard of the kind represented on the chins of gods and Pharaohs, is regarded as evidence that the destroyed mummy cases had been decorated with mosaic ornamentation in fine stones. The chamber was filled with water to the depth of three feet. After completing the examination of this pyramid Mr. Petrie began operations at the pyramid of Illahûn, which stands at the gate of the Fayoum, in the position commanding the spot that must have been occupied in ancient times by the locks by which the influx of the Nile into the lake was regulated. He had not succeeded in finding the entrance to the pyramid chambers when the working season closed at the end of May, but he made many other discoveries of great interest. The ruins of the pyramid chapel and the shattered remains of a shrine adjoining the pyramid yielded many fragments of the cartouches and "Ka-name" of Usertesen II. The building, erected most probably by this king, had been pulled down in the time of Ramesses II and the granite removed to build a sanctuary at Heracleopolis, leaving the place to be identified by traces of the limestone boundary wall and a square area of limestone chips. The site had again been used as a Christian cemetery in the fifth and sixth centuries of our era. This cemetery yielded numerous specimens of clothing in a fine state of preservation. Digging below the Christian graves and the bed of limestone chips, Mr. Petrie discovered in a square hole sunk in the bed-rock the foundation deposits of Usertesen II. The hole had been fitted with two blocks of stone as stoppers, both of which were cut with rope-grooves for lowering them into place. Beneath them appeared a bed of mixed sand and stone-flakes about a foot deep, and below this a mass of smashed pottery, four pairs of sandstone corn-rubbers, eight bronze knives with pointed blades, eight with ordinary blades, four small chisels, four large chisels, four bar chisels, four axe-heads, four pieces of ore, and twelve strings of carnelian beads of a rich, translucent red color. The threads connecting the beads had rotted away, but the beads lay in lines. The use of the beads has not been determined. Mr. Petrie suggests that they may be bead-money—the earliest examples yet discovered—or that some mystic meaning may have attached to them.

An Ancient Village.—Adjoining the pyramid temple, and built square with it, were the remains of a town of the same period. It was symmetrically laid out in parallel rows of storehouses and chambers, the chambers being planned to round numbers of cubic measurements, as two by five, four by three, and the like. The whole was evidently planned at one time, and was in all likelihood designed for the architects, artists, workmen, and officers employed in the

construction of the temple and pyramid. Somewhat similar structures have been found elsewhere, as at Ghizeh. In some of the chambers masons' tools were found, carpenters' tools in others, and plasterers' tools in others. "Thus, for the first time, a complete, untouched, and unincumbered settlement of the twelfth dynasty is brought to light." The decorations and furnishings, domestic objects, and manner of life of the people of the remote age of the Usertesens are illustrated by other objects discovered in these chambers. A style of pottery, with incised patterns in imitation of basket-work, found here was hitherto unknown. Very many papyri of the period were found almost perfectly preserved. Some of them were still rolled up and sealed with clay impressions of scarabs of early patterns. One bears the seal of an officer of one of the Amenemhats. Some of the material of these papyri is described as being of "marvelous" quality, and the texture as thin as "foreign note paper." Some new-born infants were found buried under the floors of the chambers, in very careless fashion. The cemetery of this town extended for some distance around the base of the pyramid, but the ancient graves had been plundered. The ground was also occupied as a cemetery from the twenty-first to the twenty-fifth dynasties, but the later interments afforded little of historical or archaeological value. The name of the town appears from seals attached to some of the papyri to have been *Ha-Usertesen-Hotep*, or, "the Votive Temple of Usertesen." The site is now called Tell Kahun.

Village at Tell Gurob.—A few miles distant from Illahûn, on the other side of the Bahr Yusûf, Mr. Petrie discovered the remains of another town of the latter part of the eighteenth or early part of the nineteenth dynasty. It was surrounded by a wall, and outside of the wall was the necropolis. The modern name of the place is Tell Gurob; the ancient name has not been ascertained. The earliest relics gave the names of Thothmes III, Tutankhamen, and Horemheb, while the place had apparently ceased to be occupied in the reign of Seti II, the son of Menephthah (the Pharaoh of the Exodus). The cemetery, however, continued in use for a much longer time, for mummies of the Ptolemaic age were exhumed from it. The head cases of the later mummies were made of a cartonnage built up of papyri instead of the usual thicknesses of linen, and the layers were easily separated, in good condition, by soaking. By this process, Mr. Petrie obtained a considerable number of Ptolemaic documents in pieces as large as one's hand. Among them were fragments of royal decrees, beginning, "King Ptolemy to —, greeting, etc."; an ephemeris, or daily record of court affairs and regulations of the fourteenth year of Ptolemy Philadelphus; letters, including part of an epistle from a youth at college, telling his father how he was getting on and saying that he at last understood mensuration and could draw a plan of a house; and a letter from one of the royal goose-herds, saying that he could not supply twelve geese for King Ptolemy's festival. The bronzes, including knives, chisels, axe-heads, mirrors, etc., are described as being the finest in the way of domestic objects yet found in Egypt. Two inscribed shallow pans—votive offerings—



OBJECTS FROM TELL KAHUN (TWELFTH DYNASTY).

1, Wooden statuette of a dancer or mummer. 2, 3, Ivory castanets found with the image No. 1. 4, Mummer's mask. 5, Toy boat of flint. 6, Fire-stick. 7, Wooden spoon. 8, Sling. 9, Hippopotamus in flint. 10, Ball. 11, Plummets. 12, Brick-mold. 13, Wooden hoe. 14, Plasterer's float. 15, Sickle. 16, Boy playing on two pipes. 17, 18, 19, Alphabetic inscriptions.

OBJECTS FROM TELL GUROB (EIGHTEENTH DYNASTY).

20, Figure in pottery. 21, False-necked vase. 22, Carved head from coffin (in wood, 1300 B. C.). 23, Similar head of a later period.

are "triumphs of hammer work," so thin as to be quite elastic and flexible, but having thick rims. The potteries were partly of the Cypriot and partly of the Mycenaean types and distinct in style from those of the Illahûn settlement, but having the common feature with them of bearing incised characters that are neither hieroglyphic nor hieratic, but apparently very early Cypriot or Greek. The signs traced on the pottery of the twelfth dynasty are distinctly Cypriot, and Phœnician is found on the later pottery at Tell Gurob. At this place "the evidences of a foreign settlement are overwhelming." The weights were of the Assyrian standards. Interments of an alien race with yellow hair and foreign names were detected in the cemetery. One of these cases bore the name An-Tursha, pointing to the Tursha nation who are mentioned in the Egyptian inscriptions as allies of the Achæans and Libyans against Egypt.

Domestic Relics of the Twelfth, Eighteenth, and Nineteenth Dynasties.—The smaller objects found in these villages were brought to London, and were exhibited to the public in the latter part of September, a separate apartment in the Oxford Mansion being allotted to the collection from either village. Among the objects in this exhibition which are figured in the illustration are, from Tell Kahun (twelfth dynasty, about 2600 or 2800 B. C.), a wooden statuette of a dancer or mummer, dressed only in a tail and a mask (see plate, p. 26, No. 1); a pair of ivory castanets found with this image (Nos. 2 and 3); the actual mask of the mummer (No. 4), found in the next room. It was made of canvas and plaster, and was painted black, with crescents of color around the eye-holes, and patches on the cheeks. These articles were probably part of the outfit of a professional dancer who occupied the apartments; a child's play-ball (No. 10); a toy boat (No. 5), and a hippopotamus (No. 9), chipped out of flint; a fire-stick, in the notches of which an upright stick was rotated to produce fire by friction (No. 6); a wooden spoon in the form of a shell supported by a serpent (No. 7); a sling, with the loop that was slipped over the finger (No. 8); a plummet (No. 11); a brick-mold (No. 12); a plasterer's float, (No. 14), cut out of a solid block of wood, and of precisely the form in use to-day; a wooden hoe (No. 13); a sickle, cut in two pieces and having three small flint saws cemented into a groove sunk in the edge of the wooden handle (No. 15); a figure of a boy playing on double pipes (No. 16); a name inscribed on a piece of wood (No. 17); other alphabetic signs (Nos. 18 and 19). Of the objects from Tell Gurob (eighteenth dynasty, about 1400 to 1500 B. C.), there are represented in the illustration a false-necked vase (No. 21); a figure in pottery (No. 20); a head carved in wood from a coffin of about 1300 B. C. (No. 22); and another similar head of a later period (No. 23). Many of these objects are represented by several specimens. The collection contains a large number of workmen's tools and other articles besides the objects illustrated, including chisels of bronze and flint; thirty or forty flint saws; wooden cramps; wooden "off-set pegs," employed for dressing stone facings; the handle of an adze; bow drills; three cubit measures, one of which, a "short"

cubit—the first that has been found—consists of a massive piece of dark wood, beveled at one side and marked off into divisions of six palms; clay molds for casting bronze hatchets, knives, and the like; a collection of knife and hatchet blades and other tools, some of which had probably been cast in these very molds and afterward hammered; a bronze mirror, the plate having a diameter of eight and a half inches, mounted in a massive handle of solid ivory carved in the form of a lotus scepter; hoes of two shapes; "five very clumsy, archaic-looking wooden rake-heads"; two grain scoops; articles of pottery, plain and blue-glazed; wooden-tooth combs; bronze needles; hair-pins of bone; strings of beads; spindles and whirls; fishermen's and weavers' furnishings; rope-ring cushions for supporting loads on the head; sandals in a considerable variety of styles; and a fragment of a black basalt statue in heroic size, as well as a colored portrait-head of the Pharaoh in bas-relief. The eighteenth dynasty is represented by jewelry, ivory carvings, amulets, scarabs, and other small articles of value, sarcophagi, mummy-case lids carved into human forms, and funerary images from Tell Gurob and the cemetery at Hawâra, with the mummy case and skull of the (Etruscan) foreigner An Tursha.

Completion of work at Bubastis.—Miss Edwards, as honorary secretary, represented at the annual meeting of the Egypt Exploration Fund, April 12, that the excavations at Bubastis had been completed with the close of the season of 1888-'89. Every block of stone had been lifted and rolled; every bas-relief had been reproduced in paper casts; and every inscription copied. Even though the results had been negative rather than positive, it was a source of satisfaction that the task had been performed. The only large work of art found during the year had been a colossal group of two figures in red granite. Several inscriptions, however, had been recovered; as, for instance, part of a large tablet in praise of Rameses II; an inscription of Useresen I, showing that the earliest temple built upon this site was still standing at the beginning of the twelfth dynasty; and two inscriptions which carry back the date of that earliest temple to 4000 B. C. (Mariette's chronology); namely, one containing the throne-name of Khafra (Chephren), the builder of the second pyramid, and one containing the so-called "banner-name" of Khufu (Cheops), the builder of the Great Pyramid. The history, therefore, of the famous temple of Bast is now found to extend from the time of Khufu to the time of Ptolemy Epiphanes II. Before leaving Tell Basta, M. Naville had made a tentative excavation in a spot near the Great Temple, which has long been identified with the Temple of Thoth, described by Herodotus as "the Temple of Hermes." This excavation disclosed only a few blocks bearing the names of Osorkon II and Rameses II, and a large tablet recording donations made to various temples.

The monuments derived from these excavations have been brought to England and distributed to various museums in Europe and the United States, whose friends have interested themselves in the work of the Exploration Fund. The removal of these monuments from Egypt

instead of allowing them to remain there is excused by alleging that in the absence of adequate provision for protecting them they would be subject to certain destruction at the hands of the Arabs and travelers, and that they can not be regarded as safe till placed under European care. Of the pieces, there have been given to the British Museum a column of the Egyptian "palm order," in polished red granite, with palm capital, shaft, and base complete—the shaft inscribed with hieroglyphic characters; the upper half of a colossal statue of a king in red granite—archaic style; three large fragments of a shrine in polished red granite, sculptured in very low relief—period of Nectanebo I (thirtieth dynasty); a large slab of red granite carved in bas-relief with portrait figures of King Osorkon II and his wife, Queen Karoama (twenty-second dynasty); and a colossal statue in polished black granite of the Hyksos King Apepi, in four pieces—"the finest piece of Egyptian portrait sculpture known." To the Boston, Mass., Museum of Fine Arts were given a colossal Hathor-head capital in red granite, described as being very beautiful; the upper half of a colossal statue of a king in red granite, the companion to which was given to the British Museum; a colossal lotus-bud capital in two pieces, from the hypostyle hall of the temple; a red granite slab in bas-relief from the festival hall of Osorkon II; and two bas-relief slabs in limestone, from the site of a temple to Hathor founded by Ptolemy Soter at Terraneh, the ancient Termuthis, the remains of which were discovered and excavated by Mr. F. Llewellyn Griffith in 1888. These specimens date from the time of the fourth dynasty down to the twenty-second dynasty. The lotus-bud capital is a fine example of the work of the twelfth dynasty. The sculptures from Terreneh represent the art of the Ptolemaic period "under its most engaging aspect."

Two of the tablets described by Prof. A. H. Sayce as having been discovered at Tel-el-Amarna in 1888, of the time of Amenophis IV, relate to a rebellion which occurred in southern Palestine. The descriptions of the cities and tribes embodied in them make no mention of Israelites, and indicate that that people were then absent from the country. They must then have been already living in Egypt. This fact is regarded by Prof. John A. Paine as destructive to the chronology which makes the duration of the sojourn only two hundred and fifty years.

The absence of representations of horsemen on the Egyptian monuments has been remarked, and has been interpreted by certain authors as signifying that the Egyptians possessed no mounted horsemen or army division of cavalry. But the title "Commander of the Cavalry" had already been found contemporary with the exodus and, now Mr. Petrie has published in his book on "Tanis" inscriptions which he found on two granite *stelæ* in which Rameses II is described as "the very valorous upon horses" and "strong upon his horses."

A peculiar monument at Tell Nebesheh, described by Mr. Petrie in his "Tanis," is a column of red syenite erected by Menephthah, about twelve feet high, sculptured on the shaft with scenes of adoration and offering, and the flat, plain top surmounted by a group of statuary consisting of the king kneeling, with a hawk behind him. Supposing this to have been one of a pair standing on opposite sides of an avenue, they might be regarded as analogous to such structures as the pillars Jachin and Boaz of Solomon's temple and pillars of the temples of Hercules at Tyre and of Aphrodite at Persepolis.

The theory of Mr. Cope Whitehouse that the Wady Raian once formed a continuous sheet of water, constituting the Lake Moëris of the ancients, is contradicted by Mr. Petrie in the account of his investigations at Hawāra, Biahmu, and Arsinoë. He says that the ground rises between the two depressions to a height of more than one hundred feet above the level of the Nile.

Preservation of Egyptian Monuments.—

A society for the preservation of Egyptian monuments has been formed in England, with an executive committee including Sir Henry Layard, Mr. Petrie, and M. Le Page Renouf. The Egyptian Government, with which it will co-operate, has had a survey made of the structures that are most in danger from the infiltrations of the Nile and destructive human agencies, and a report on the feasibility and probable cost of making them safe. Provision will be made for the future inspection and guard of the ruins.

Ruins of Thaumegas, Algeria.—The remarkable ruins at Timegad, the ancient Thaumegas, Algeria, which were visited by Sir Lambert Playfair in 1875, and have been described



FIG. 6.—TRIUMPHAL ARCH AT THAUMEGAS.

by him and by Mr. Alexander Graham, and mentioned by French travelers, have recently been excavated by the Director of Historical Monuments of the district. Thaumegas was founded by Trajan as a recompense to the veterans of the Thirtieth Legion, and soon became the political capital of the district. The Triumphal Arch (Fig. 6) in the axis of the colonnade of the Forum, one of the most important monuments of the kind in Africa, is in the Corinthian order, and is built of sandstone, with the columns, capitals, and bases of the pilasters, the brackets, and en-

tablature of white marble. The north façade of the Forum had a colonnade running its entire length along the road leading through the Triumphal Arch; the road is still deeply scored

red sandstone, weighing perhaps five or six tons. It must have come from a considerable distance, for no stones of similar character are found on the island. It is mortised into two pillars of conglomerate (possibly an eruptive stone), likewise of great weight, one of which, which has been dug around, is planted to a depth of at least twelve feet. No date can be fixed for the erection of the monument. The natives profess to know nothing of its history.

ARGENTINE REPUBLIC, an independent republic of South America. (For area, population, etc., see "Annual Cyclopædia" for 1883.)

Government.—The President is Dr. Juarez Celman, whose term of office will expire on Oct. 12, 1892; the Vice-President is Dr. Carlos Pellegrini. The Cabinet is composed of the following ministers: Interior, Dr. N. Q. Costa; Foreign Affairs, Señor Zeballos; Finance, Dr. W. Pacheco; Justice, Dr. F.

Posse; War and Navy, Gen. E. Racedo. The Argentine Minister at Washington is Don Vicente G. Quesada; the Consul at New York, Señor Adolfo G. Calvo. The American Minister at Buenos Ayres is Bayless W. Hanna; the Consul, Edward L. Baker. The Argentine Republic appointed three delegates to the American International Congress, viz., Don Roque Peña, Don Manuel Quintana, and the minister above named, Don Vicente G. Quesada.

Army and Navy.—Without counting the 400,000 men constituting the National Guard, the military force at the disposal of the Government consists of the regular army, having a strength of 6,567 men, 3,245 being foot, 2,571 horse, and 751 artillery. The navy consists of 2 armored vessels, 4 cruisers, 4 gun-boats, 7 torpedo-boats, 4 steam transports, 3 avisos, 7 other steamers and 6 sailing-vessels; together 38 vessels, mounting jointly 73 guns; registering 16,612 tons, with 13,055 horsepower, and manned by 1,966 sailors.

Railroads.—On Dec. 31, 1887, the number of kilometres in running order was 6,669; a year later it was 7,255, showing an increase of 586 kilometres. In 1887 the amount of capital invested therein was \$205,183,298; in 1888 it had risen to \$220,746,247, showing an increase of \$15,562,949. The number of passengers forwarded in 1887 was 7,969,800; in 1888 it reached 9,671,233. The transportation of merchandise rose from 3,444,560,933 kilogrammes in 1887 to 4,010,285,431 in 1888. The net earnings amounted to \$22,290,069, in 1887, and to \$26,526,707 in 1888. While the running expenses of the Southern Railroad only absorbed 45 per cent. of the gross earnings, those of the Eastern Railroad took 99½ per cent.

Postal and Telegraph Service.—The President, in his message submitted to Congress, on May 12, 1889, remarked: "The dispatch of letters, postal cards, and packages, through the post-

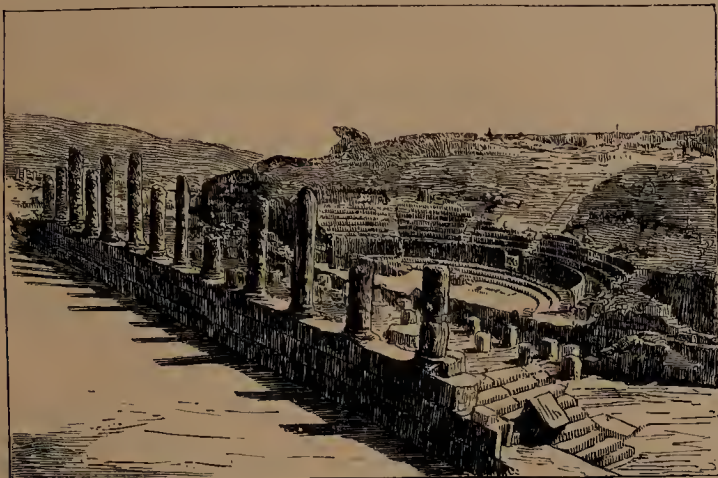


FIG. 7.—THEATER AT THAUMEGAS.

with the ruts made by chariot-wheels. Inscriptions, pedestals, and fragments of statuary lie scattered about in its interior; the most important of them have been restored to their places. The theatre (Fig. 7) was cut in the abrupt northern flank of a hill, the opposite side of which sloped gradually to the south. Among the other buildings brought to light are the capitol, with remains of very large columns, several basilicas, and a Byzantine fortress. The ruins are well preserved.

Tonga Islands.—A drawing of a remarkable structure in the island of Colonga, of the Tonga group, has been made on the spot by Mr. Murdock, of the British corvette "Diamond," and is

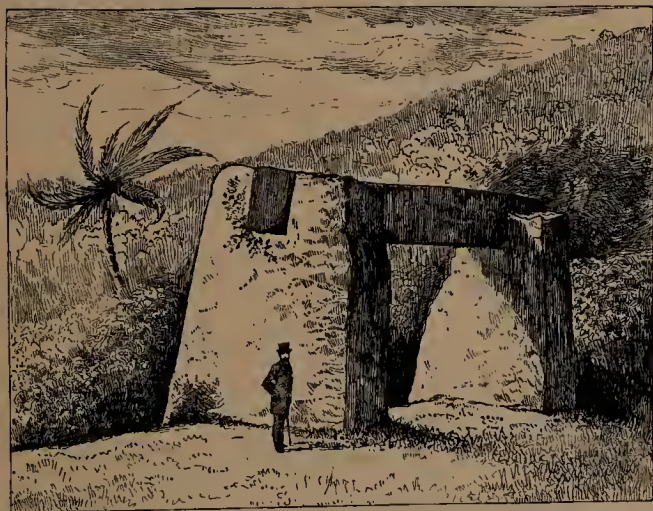


FIG. 8.—PREHISTORIC MONUMENT ON THE ISLAND OF COLONGA.
(From a drawing by Mr. Murdock, R. N.)

reproduced in Fig. 8. The massiveness of the structure and its position in an island where the natives are still in a nearly primitive condition and ignorant of the execution of great architectural works, give it great interest. The horizontal beam on the top of the pile is a piece of very fine

offices of the republic, during the fiscal year just terminated, has exceeded by 42 per cent. that of 1887-'88, and of telegrams by 6 per cent. In spite of the reduction of postage, and in consequence of the suppression of free letters and messages, the post-office receipts have been 17 per cent. greater, and those of the telegraph office 62 per cent. greater than in 1887-'88. There were laid 5,359 kilometres of new telegraph lines, and 3,529 additional ones contracted for or in course of construction. To facilitate cable communication with Europe, a contract has been made to lay a cable between Buenos Ayres and Lisbon."

Finances.—On Jan. 1, 1889, the Argentine Republic, provinces, and cities were owing, abroad and at home, the following amounts of money :

DEBTORS.	Foreign debt.	Internal debt.
The National Government	\$129,018,662	\$190,886,888
City of Buenos Ayres.....	10,000,000	14,048,691
Cities of Rosario and Santa Fé ..	7,500,000	.....
Province of Buenos Ayres	74,332,764	4,162,009
Province of Santa Fé	36,915,390	3,471,500
Province of Córdoba.....	19,049,760	527,413
Province of Entre Ríos	17,491,293	2,905,489
Province of Mendoza	5,000,000	174,106
Province of Tucuman	3,024,000	200,000
Province of Santiago.....	5,000,000	287,456
Province of San Juan.....	2,016,000	101,538
Province of Catamarca.....	3,024,000	138,125
Province of San Luis	2,520,000	260,000
Province of Rioja.....	4,000,000	968,499
Province of Corrientes	5,040,000	550,000
Province of Salta	5,000,000	150,000
Total.....	\$328,922,169	\$218,766,714

The National Government and provinces, taken together, had since 1821 issued \$697,844,381 tokens of indebtedness, and had redeemed up to Dec. 31, 1888, \$157,223,855 thereof, leaving a total outstanding debt of \$540,620,526. The budget of the National Government for 1888 estimated the income at \$53,743,800, and the outlay at \$51,086,536; the budget estimate for 1889 fixed the former at \$60,224,000 and the latter at \$60,028,680; while that for 1890 estimated the two items at \$57,380,000 and \$55,473,762. On July 11, 1889, the Government had to its credit, in national and provincial banks, \$41,520,000 in paper money, \$24,070,000 in gold; in Europe, \$12,500,000.

In 1885 the gold premium averaged at Buenos Ayres 37 per cent.; in 1886, 38½; in 1887, 35½; and in 1888, 48. In 1889 the spirit of speculation had forced up the premium till, in September, it reached 125 per cent., but it receded to 116 on Nov. 15.

Commerce.—In 1887 there entered Argentine ports 5,694 sailing-vessels, with a tonnage of 1,010,731 tons, and 6,607 steamers registering 3,460,870 tons. The foreign trade of the Argentine Republic for five years has been, in merchandise only:

YEARS.	Imports.	Exports.
1884	\$94,056,000	\$68,029,000
1885	92,221,000	83,879,000
1886	97,658,000	69,534,000
1887	116,292,000	83,827,000
1888	127,607,860	99,556,377
1888, first quarter.....	32,035,367	30,140,212
1889, first quarter.....	37,483,985	33,938,042
Increase during the quarter.....	5,448,618	3,797,830

The import and export of specie and bullion in 1887 and 1888 was:

YEARS.	Import.	Export.
1887	\$9,452,000	\$8,877,000
1888	44,803,140	8,722,623

The Argentine foreign trade, including specie and bullion, was distributed in 1887 and 1888 as follows (in thousands of dollars).

COUNTRIES.	1888.		1887.	
	Import.	Export.	Import.	Export.
France	27,781	28,131	24,017	25,211
England.....	63,721	17,698	39,501	21,484
Belgium	11,177	16,683	11,272	11,687
Germany.....	29,115	13,247	12,020	9,370
United States.....	9,935	6,663	10,991	5,939
Brazil	2,439	4,802	2,600	2,782
Spain	3,902	3,311	4,994	1,144
Italy	7,732	2,735	6,998	2,904
West Indies	2	1,247	6	743
Portugal	59	136	58	15
South Africa .....	..	11	..	12
Uruguay.....	8,874	7,925	8,110	6,396
Chili	25	1,682	16	1,029
Paraguay	1,724	409	1,591	447
Bolivia	211	269	533	178
Holland	277	...	422	...
Sweden and Norway.....	84	...	31	...
Other countries.....	5,353	3,325	2,614	3,163
Total.....	172,411	108,279	125,744	92,704

The exports in 1888 included the following items: Live cattle, \$1,798,251; wool, \$44,858,608; linseed, \$2,131,815; Indian corn, \$5,376,689; wheat, \$8,247,751; frozen mutton, \$1,459,679; tallow, \$2,138,388; cabinet woods, \$760,546; ores, \$1,519,407; nutria skins and ostrich feathers, \$461,011; other articles, \$1,509,909; adding thereto, \$8,722,623 in specie and bullion; the total is \$108,279,465. The American trade with the Argentine Republic is shown in the following table:

YEARS.	Import into the United States.	Domestic export to the Argentine Republic.
1885	\$4,775,616	\$3,984,190
1886	4,354,880	5,020,835
1887	4,977,013	5,911,027
1888	5,465,893	6,145,842

The wool shipments in 1879 were 238,634 bales; in 1888, 318,124.

The Cattle Trade.—The cattle industry of the republic was so languishing in 1888 that a law was passed offering a guarantee of 5 per cent. for ten years on the capital employed in the business of exporting fresh or preserved beef. Several establishments were preparing to take advantage of the guarantee provided by the Government, and are going into business on a large scale, with special steamers fitted up for the traffic, and warehouses in England and France. Stall-fed cattle are unknown in the country, and all bullocks are taken directly off the grass, the meat, of course, being soft and watery. Argentines have yet to learn that dry food is absolutely necessary in order to prepare fresh meat for distant foreign markets.

The Sociedad Rural Argentina made, in the spring of 1889, an experimental shipment of live cattle by steamer to Havre, some of the animals weighing 850 kilogrammes. The calculation of

the cost of laying down such cattle in a European port was as follows: Cost per head, \$30 gold; freight to Europe, \$20; fodder and attendance, \$10; other expenses, \$5; total, \$65. Assuming the average selling-price in Europe to be \$100 per head, it would net \$35 profit.

The export of carcasses of sheep in refrigerator steamers to England has of late years been rapidly on the increase, as the following table shows:

YEARS.	To London.	To Liverpool	Together.
	Carcasses.	Carcasses.	
1888	17,165	.....	17,165
1884	108,823	.....	108,823
1885	190,571	.....	190,571
1886	331,245	103,454	434,699
1887	242,903	393,963	641,866
1888	195,460	678,000	873,460

The average weight has gradually risen from forty pounds to forty-five.

There were, in 1888, 22,869,385 head of horned cattle, 4,398,283 horses, and 70,458,665 sheep, having a total value of \$369,561,607.

Horses.—Buenos Ayres and the surrounding pampas have been for some years past a paradise for horse fanciers and breeders. At his last sale of pedigree horses, Mr. Remmis, who set out from Ireland twenty-five years ago to begin horseculture there, got an average of \$4,500 apiece, in gold, the entire sale realizing between \$100,000 and \$150,000. Carriage-horses, if sizable and fairly well matched, command \$5,000 in gold a pair. Some of these South American horses have done well across country in Ireland and England.

Cotton and Wool Manufacture.—Early in 1889 the Provincial Senate of Buenos Ayres passed a bill authorizing the incorporation of a cotton and wool weaving factory, at La Plata, with a capital of \$5,000,000, the province guaranteeing interest on the capital for ten years.

Agriculture.—The number of hectares (of 2½ acres) under cultivation in 1888 was 2,359,958, distributed as follows among the various products: Indian corn, 832,601; wheat, 824,099; alfalfa, 379,816; barley and oats, 36,659; linseed, 117,237; vines, 26,931; sugar-cane, 21,053, other products, 121,502.

Education.—In 1869 the number of pupils attending school in the republic was 82,671; in 1883 they had increased to 146,325, and in 1887 to 227,450, of which number 142,471 were in the interior provinces, the remainder in the capital, where 27,715 pupils attended the public schools, 12,200 the normal schools, 11,106 private schools, 30,960 private schools in the province of Buenos Ayres, and 2,998 children were taught in the public schools of the national territory. The number of teachers was 6,421. In 1885 there were 2,352 schools all told; in 1886, 2,726; in 1887, 3,028.

Immigration.—The number of immigrants landed in 1888 was 180,993, against 142,786 in 1887. During the first seven months of 1889 157,681 arrived. It was estimated that the total number of immigrants for 1889 might attain the figure of 370,000.

Arbitration.—One of the causes of the trouble between the Argentine Republic and Brazil has been the dispute about the boundary line.

A treaty was signed on Sept. 7, in which it was agreed to settle the question by arbitration. It was further agreed that, in case the two contracting parties should not come to a direct agreement within ninety days from the signing of the treaty, the whole matter should be submitted to the President of the United States, and by him settled.

ARIZONA, a Territory of the United States, organized in 1863; area, 113,020 square miles; population, according to the last decennial census (1880), 40,441; capital, Prescott, until Feb. 4, 1890; thereafter, Phenix. (See article PHENIX, in CITIES, AMERICAN, in this volume).

Government.—The following were the Territorial officers during the year: Governor, C. Meyer Zulick, Democrat, succeeded in March by Louis A. Wolfley, Republican; Secretary, James A. Bayard, succeeded by Nathan O. Murphy; Treasurer, C. B. Foster, succeeded by John Y. T. Smith; Auditor, John J. Hawkins, succeeded by Thomas Hughes; Attorney-General, John A. Rush, succeeded by Clark Churchill; Superintendent of Public Instruction, Charles M. Strauss, succeeded by George W. Cheyney; Commissioner of Immigration, Thomas E. Farish, succeeded by John A. Black; Chief Justice of the Supreme Court, James H. Wright; Associate Justices, William W. Porter (succeeded by Joseph H. Kibbey) and William H. Barnes.

All the above-named officers, except the Secretary and the judges, are appointed by the Governor, subject to confirmation by the Legislative Council. Appointments made by the Governor when the Legislature is not in session are valid without such confirmation until the next meeting of the Legislature. By virtue of this law, Treasurer Foster, Auditor Hawkins, and other Democratic officials, had already been in office nearly two years under appointment by Gov. Zulick, when the Legislature of 1889 met. The Council, being Republican, refused to confirm them, whereupon the Governor declined to make further nominations until the session of the Legislature had reached the sixty-day limit. He then, on March 22, renominated the former officials. But meanwhile the Republican members of the Legislature had continued both houses in session beyond sixty days, and until President Harrison had appointed a Republican successor to Gov. Zulick. The new Governor recognized the hold-over session, and sent in to the Council several nominations which were confirmed. Among the nominees were John Y. T. Smith, to be Territorial Treasurer, and Thomas Hughes, to be Territorial Auditor. The Democrats claimed that the session had expired, by force of law, on March 21, at the end of sixty days after assembling; that the appointments made by Gov. Zulick on March 22 must stand until confirmed or rejected by the next Legislature in 1891; and that the appointees of Gov. Wolfley had no standing. Accordingly, the Democratic officials refused to surrender their offices to the Republican claimants. Suits were brought by the latter, and the dispute over the Treasurer's office was determined on May 15 by Judge Porter, of the Supreme Court, who rendered a decision in favor of Smith, the Republican contestant, on the ground that, as the Territorial law did not fix the term of office of the Treasurer, it must

be considered to be during the pleasure of the appointing power, and no longer. With regard to the office of Auditor a different question was presented, which the Territorial Supreme Court had not decided late in the year. Meanwhile, a dual government practically existed in the Territory, many of the minor offices being in dispute, including those of commissioner of immigration and directors of public institutions. The Governor would not countersign warrants drawn by the Democratic Auditor, and the Treasurer would not pay warrants drawn by the Republican Auditor, who had not yet obtained possession of the office. The creditors of the Territory can not be paid until the dispute is settled.

Legislative Session.—The Territorial Legislature met at Prescott on Jan. 21. On Jan. 24, as soon as both branches were organized, a bill was introduced providing for the removal of the capital to Phenix, in Maricopa County, the change to take effect on Feb. 4, 1890. This bill passed both Houses on the same day and received the approval of the Governor. The vote of the Council was 9 to 2 in its favor, and in the House 14 to 10. On Jan. 28 both Houses adjourned to meet at Phenix on Feb. 7. One of the most important acts passed after adjournment provides for an election, on Nov 5, of delegates to a constitutional convention, which is directed to meet at Phenix on the first Tuesday of January, 1890. The number of delegates is fixed at forty-two, to be elected by counties. The constitution adopted by this convention is to be submitted to the people at such time as the convention shall direct. Another act of the session creates the office of county surveyor, and defines its duties. The sinking of artesian wells for irrigation is encouraged by an act authorizing the various county supervisors to offer as a reward any sum, not exceeding \$3,000, to any person or persons who shall be first in obtaining by such means a flowing stream of not less than 24,500 gallons of water every twenty-four hours for ten days. The following Sunday law was passed:

SECTION 1. Every person who keeps open on Sunday, within the limits of any incorporated city in the Territory of Arizona, any store, workshop, bar, saloon, banking-house, or any other place of business, for the purpose of transacting any business therein, is guilty of a misdemeanor, and upon conviction thereof shall be fined in a sum not less than \$50 and not to exceed \$300, or shall be imprisoned in the county jail not less than ten days and not more than sixty days, or shall be subject to both such fine and imprisonment.

Sec. 2. The provisions of the preceding section do not apply to persons who on Sunday keep open hotels, boarding-houses, barber shops, baths, markets, restaurants, livery stables, or retail drug-stores, for the legitimate business of each, or such manufacturing or mining industries as are usually left in continuous operation.

The Territory has of late been the scene of several outrageous train robberies. A stringent law was passed to check this crime, providing that every person "who shall make any assault upon any railroad train, railroad cars, or railroad locomotives, within the Territory, for the purpose and with the intent to commit murder, robbery, or any other felony, upon or against any engineer, conductor, fireman, brakeman, or any officer or employé connected with the said locomotive, train, or cars, or any express messenger or

mail agent on the train, or in any of the cars thereof, or who shall counsel, aid, abet, and assist in the perpetration of the offense or offenses set forth in the preceding section thereof, shall be deemed guilty of a felony, and shall suffer the punishment of death."

In order to protect the border counties against paupers coming from Mexico, it was provided that every applicant for public charity shall make an affidavit before a justice of the peace that he is a citizen of the United States. It was also provided that the care of the indigent sick in each county should be let to the lowest bidder. Officers of public institutions who receive and aid persons not indigent are liable to a fine.

For the purpose of completing the buildings for the Territorial University at Tucson, and for its maintenance when established, an act was passed providing for the annual levy of a tax of three fourths of a mill, the proceeds of which shall constitute the "University fund." The board of regents of the University are empowered to disburse this fund for the above named objects. A commission was appointed to select a site for a capitol building at Phenix. For grading and for constructing the building, which is not to be begun until after the meeting of the next Legislature, a tax of one eighth of a mill was imposed for the next two years. Other acts of the session are as follow:

To provide against conflagrations in towns and villages.

Providing sanitary regulation in towns and villages.

To establish liens for salaries and wages.

Providing for the sale of certain real estate belonging to the Territory in Prescott.

Concerning transaction of business on legal holidays.

To provide for a lien on stock for the charges of pasturing and feeding the same by ranchers.

To detach certain lands from the county of Yavapai, and annex the same to the county of Gila.

To amend an act entitled "An act to establish a normal school," providing for a boarding-house in connection therewith.

To encourage the construction of railroads to the Grand Cañon of the Colorado, by exempting them from taxation for six years.

Empowering boards of supervisors of the various counties to survey and define the boundaries and make maps of same.

Amending section 3,002 Revised Statutes, allowing \$1,500 salary to Territorial geologist with mileage.

To provide for the reimbursement of certain persons for the payment of live stock sanitary fund tax omitted to be levied and collected in certain counties.

To repeal act 64, entitled "An act to provide for the construction and maintenance of public roads and highways in Maricopa County."

To regulate lawful fences and trespass within the same.

Punishing with a fine not less than \$25 the carrying of concealed weapons. A heavier fine is imposed for carrying such weapons into any public assembly or to a polling place.

Declaring that no person who can not read and write the English language shall be eligible to any Territorial, county, district, or precinct office.

Providing a penalty for close herding any horses, mules, asses, goats, sheep, hogs, or cattle on the land of another, not public land of the United States, without the written consent of the owner.

Requiring that every person employed in the public service—whether by election, appointment, or contract—shall be a citizen of the United States.

Providing a penalty for destroying fences.

According to Federal law, the session should have ended on March 21, the sixtieth day; but at that time the general appropriation bill had not been passed, and the appointments of Democratic Territorial officials, made by Gov. Zulick, had failed of confirmation by the Legislative Council, which consisted of eight Republicans and four Democrats. The Republicans also controlled 13 of the 24 votes in the Lower House; and as the appointment of a Republican Governor by President Harrison was at this time daily expected, they determined to prolong the session, in order that the appointees of the new Governor might be confirmed by the Council and assume their offices. The Democratic members protested that the adjournment was illegal, and thereafter refused to attend the sessions. A bill creating the county of Coconino was passed, but was vetoed by the new Governor. The appropriation bill then passed both branches, the Council confirmed Gov. Wolfley's appointees, and both Houses adjourned without day on April 10. The validity of all acts passed after March 21 is a matter of dispute in the courts.

Finance.—The total receipts of the Territorial treasury for the fiscal year 1885-'86 were \$206,374.30, and there was a balance in the treasury at the end of the year of \$57,200.50. For the year 1887-'88 the receipts increased to \$369,426.64. But the expenses had increased so much that at the close of the latter year the balance in the treasury was only \$12,883.09, and there were outstanding warrants unpaid to the value of \$26,025.57.

Development.—The Territorial census of 1882, taken at the height of the mining excitement, showed a population of 82,976, with 11,262 voters. These figures are not deemed reliable by the Governor, who estimates the present population at 60,948, with a registered vote of about 16,000. The number of miles of railroad assessed for 1889 was 1,093, an increase of 40 miles over 1888. The total taxable property for 1889 was valued at \$26,575,692. The Territorial debt is \$752,000, and the total debt—Territorial, county, and city—\$2,902,910. During the past year new entries were filed upon 500,798 acres of the public domain in the Territory. The product of gold and silver for 1888 as given by Wells, Fargo & Co's express company, aggregated \$5,123,868. The value of the copper and lead product for the same year is estimated at \$2,500,000, of which fully 95 per cent. was copper. There are valuable deposits of coal and iron in the Territory, awaiting the approach of railroads to make their development profitable.

Mormonism.—Gov. Wolfley says, in his annual report, "Arizona once had a law disfranchising all who practiced, taught, or encouraged polygamy. The first legislative act signed by my predecessor was a repeal of that law. Politically the Mormons seem to have adopted a plan of sending colonies to surrounding Territories in sufficient numbers to form a balance of power between two political parties. They are willing to trade with either, but remain true only so long as the interests of their Church are best served." The number of Mormons in the Territory is reported by the Governor to be 8,000.

Yavapai County.—This is one of the largest and most prosperous counties of the Territory,

and contains the city of Prescott. The assessment roll of this county for 1889 shows 853,590.85 acres of land, assessed at \$425,901.76. Improvements are valued at \$264,134.45; town lots, \$212,051.40; improvements on town lots, \$374,271. The total railroad mileage is a little over 275½ miles, of which 35 miles is assessed to the Central Arizona, at \$49,005; 73.3 to the Prescott and Arizona Central, at \$300,125; and 167½ to the Atlantic and Pacific, at \$1,339,694.05. Horses are assessed in the county to the number of 14,111—value, \$352,152; mules, 206, at \$8,040; asses, 336, at \$3,365.50; cattle, 159,773, at \$1,344,852; sheep, 102,474, at \$154,002.50; swine, 531, at \$2,060; goats, 758, at \$780.50; patented mines, 147, at \$14,700; other property at \$669,410.23, making a total of all property of \$5,564,545.39.

ARKANSAS, a Southern State, admitted to the Union in 1836; area, 52,198 square miles; population, according to the last decennial census (1880), 802,525; capital, Little Rock.

Government.—The following were the State officers during the year: Governor, James P. Eagle, Democrat; Secretary of State, B. B. Chism; Auditor, W. S. Dunlop; Treasurer, William E. Woodruff; Attorney-General, William E. Atkinson; Superintendent of Public Instruction, Wood E. Thompson; State Land Commissioner, Paul M. Cobbs; Chief Justice of the Supreme Court, Sterling R. Cockrill; Associate Justices, Burrill B. Battle, M. H. Sandels, chosen by the people on April 2 to fill the unexpired term of William W. Smith, deceased Dec. 18, 1888, Simon P. Hughes, and William E. Hemingway. The two latter were elected on April 2 pursuant to an act of the Legislature creating two additional judgeships.

Finances.—On Oct. 1, 1886, the balance in the State treasury to the credit of the general revenue fund was \$404,881.25. During the succeeding two years this was increased by receipts from all sources to \$1,535,010.94. The expenditures in that time amounted to \$756,073.03, leaving a balance in the treasury on Oct. 1, 1888, of \$778,937.91. In the common-school fund the balance on Oct. 1, 1886, was \$344,411.51, the receipts for two years were \$601,460.36, and the expenditures \$506,105.63, leaving a balance of \$439,766.24 on Oct. 1, 1888. The permanent school-fund balance increased from \$175,382.35 to \$266,368.38 in the same two years. Among the items of expenditure for the two years were: For expenses of the General Assembly, \$92,665.01; salaries of State officers, \$25,742.88; salaries of judges of Supreme, circuit, and Pulaski Chancery Courts, \$55,454.43; special judges, \$6,230; prosecuting attorneys, \$3,726; Supreme Court reporter, \$2,438.75; rewards for fugitives from justice, \$10,000; public printing, \$37,903; to refund money erroneously paid into the treasury, \$4,855.51; salaries of officers of Arkansas Industrial University, \$23,000; dormitory for the same, \$17,000; machine-shops for same, \$7,000; teams and implements for same, \$8,000; labor performed by students, \$2,000; dormitory for Branch Normal College, \$1,419; Arkansas School for the Blind, salaries and current expenses, \$26,071.36; additional buildings for same, \$6,000; Deaf-Mute Institute, salaries, current expenses, and repairs, \$50,278.36; State Insane Asylum, salaries and current expenses, \$105,998.40; purchase of bonds, \$133,701; im-

provements at Penitentiary, \$6,000; assistant State geologists' salaries, \$6,060; geological survey expenses, \$9,796.

The bonded debt of the State consists of, principal, \$2,029,100; overdue interest, \$2,832,915; total, \$4,862,015. Of this amount the United States holds more than half, and the State as trustee for the permanent school and sixteenth-section funds, holds \$423,000, leaving in the hands of individuals about \$2,000,000, of which the principal is slightly in excess of the overdue interest. Since January, 1881, there has been redeemed \$1,103,100 of principal and \$644,260.25 of interest of the debt. The State held, on Oct. 1, 1888, in its sinking fund a balance of \$2,754,501.72 available for a further reduction of the existing debt.

The total value of taxable property for 1886 was \$139,901,688; for 1887, \$148,259,654; for 1888 estimated at \$154,000,000. These returns embrace the assessed value of railroad property.

Legislative Session.—The General Assembly met on Jan. 13, and adjourned on April 3. Early in the session United States Senator James H. Berry (Democrat), was re-elected for a second term, receiving 29 votes in the Senate and 74 in the House. Gen. Powell Clayton (Republican) received 2 votes in the Senate and 12 in the House. The number of Supreme Court judges was increased from three to five, and provision was made for electing the two new members at the time of a special election to be called by the Governor for filling a vacancy caused by the death of Justice W. W. Smith, a member of the court. In response to a popular desire expressed at public meetings and during the gubernatorial canvass in 1888, an act was passed creating a "Bureau of Mines, Manufactures, and Agriculture," which was placed under the control of a commissioner to be elected every two years; but the first incumbent to be appointed by the Governor. The sum of \$18,000 was appropriated to carry out the provisions of this act. By another act the Board of Penitentiary Commissioners is required to appoint a suitable person as inspector of convicts. His duties are to visit the convict camps, stockades, and Penitentiary, to examine and inquire into the general condition and treatment of convicts, and to report his findings to the board at least every two months. This legislation is designed to prevent abuses such as were found in 1888 at the Coal Hill convict camp. The sentence of convicts is commuted for continuous good behavior one month in the first year, two months in the second year, three months in the third year, and each subsequent year till the tenth, and thereafter six months in each year. The stringent act of 1887, forbidding foreign corporations to lease, build, maintain, or operate any railroad within the State, was repealed, and by way of substitute an act was passed permitting any foreign corporation whose road is so connected with a railroad within the State as to form one continuous line with it, to lease or purchase such road, provided it first becomes to all intents a domestic corporation by filing a copy of its charter with the Secretary of State, and by performing certain other acts prescribed by the statute, which render it liable to taxation in the State. Railroad companies already operating roads in the State are, by another

act, given a general power to extend their line or to build branches, upon filing locations and certain other papers with the Secretary of State. A department for colored persons was established at the State School for the Blind. Among the appropriations were \$5,000 for the Governor to use in apprehending the murderer of the Hon. John M. Clayton; \$10,500 for the Branch Normal College for two years; \$36,000 for the Arkansas Industrial University for two years; \$95,000 for expenses of the General Assembly; and a general appropriation of \$353,930 for expenses of the State for two years. A policy of retrenchment prevailed in the Assembly to a limited extent. The salaries of all the legislative employes were reduced, but the members made no change in their own per-diem allowance, although they reduced the mileage rate one half. Other acts of the session are collected below:

Limiting the time for bringing suit to foreclose a mortgage to the period within which suit could be brought on the debt or liability that is secured by the mortgage.

Authorizing the producers of wine to sell it upon their own premises, or at any licensed saloon, in quantities not less than one quart.

Requiring all claimants against State charitable and educational institutions to present itemized accounts of claims, and to make oath that the account is just and correct and that the charges are not above the rates for similar services to private persons.

Declaring it a misdemeanor for any one, except a parent or guardian, to sell or give away cigarettes, cigars, or tobacco in any form, to any child under fifteen years of age.

Changing the boundary between Arkansas and Jefferson Counties.

Accepting the provisions of the act of Congress establishing agricultural-experiment stations.

Regulating the sale of fertilizers.

Providing that, in case of total loss of real estate, a fire-insurance policy shall be considered a liquidated demand against the company for the full amount of the policy.

Allowing to inmates of insane asylums their postal rights.

Providing that the pay of discharged railroad servants or employes shall be due on the day of their discharge, and, in case of non-payment on that day, the wages shall continue (not over sixty days) till paid.

Requiring railroads to furnish double-decked cars for the shipment of sheep and hogs.

Reducing the amount of labor on the public roads required of each person from ten to five days of each year.

Appropriating \$10,000 for carrying on the geological survey of the State.

Authorizing municipal corporations to fund their indebtedness.

Authorizing and empowering railroad officials "to do and perform all acts and things which may be necessary to protect passengers on their cars from all acts of fraud, imposition, or annoyance which are attempted or perpetrated while said passengers are on rail cars."

Authorizing the Governor to compromise, adjust, prosecute, and secure all claims of the State against the United States for lands heretofore granted, and all other claims under existing or future laws, and to employ attorneys and agents therefor.

Revising the procedure in garnishment cases.

Declaring it an offense punishable by fine for any person to export fish or game from the State during the next six years, and imposing a fine on common carriers who receive and transport fish or game from the State.

Requiring that females adjudged to be insane shall have at least one female attendant on their way to the State asylum.

Education.—The number of children in the State on June 30, 1869, between the ages of six and twenty-one years was 176,910. The number on June 30, 1888, was 388,129. The number of pupils enrolled on June 30, 1869, was 67,412; on June 30, 1888, 202,754. The number of teachers employed for the year ending June 30, 1869, was 1,335; for the year ending June 30, 1888, 4,664. Within the year ending June 30, 1884, 245 school-houses were erected in the State, the total number then was 1,453. For the year ending June 30, 1888, 269 school-houses were erected, and the total number then was 2,452, the total value of which was \$705,276.92. Nearly every county has one or more school-houses that cost from \$3,000 to \$5,000.

The revenue of the schools in 1869 amounted to \$300,669.93; in 1888, the available school fund amounted to \$1,683,909.99.

The superintendent says: "There is no State in the Union which pays more for education in proportion to her taxable property than is paid by Arkansas. As a rule we pay seven mills in addition to the poll tax, and it is cheerfully paid."

The Arkansas Industrial University, at Fayetteville, commonly known as the State University, contained at the beginning of this year 444 students, of whom 350 were beneficiaries of the State. By an act of 1887 it was reorganized so that the agricultural and mechanical departments should be of prime importance, although a classical course of study was also provided. By the same act, women were excluded from the benefits of the institution, but the Legislature of this year readmitted them. A large and commodious dormitory has recently been completed. There is but one normal school in the State, that at Pine Bluff, for the education of colored teachers, which has a large attendance.

Charities.—At the close of 1888 there were 411 patients at the State Insane Asylum, and 188 insane persons in the different counties who would be a part of its population if there were room enough for them. Some of these are confined in jails, some are in the poor-houses, and some are cared for by individuals. The Governor this year recommended an appropriation for new buildings, but none was made. The State also supports a School for the Blind and a Deaf-Mute Institute.

Convicts.—The existing lease of State convicts extends four years, from May 7, 1889, and is the source of an annual revenue of about \$25,000. In March there were 731 convicts, of whom only about half could be accommodated within the walls of the Penitentiary, should it become necessary at any time for the State to resume control of them. Before the lease system can be abolished, the Penitentiary must be practically rebuilt and equipped with machinery.

State Lands.—The report of the State Land Commissioner shows that there were sold, redeemed, and otherwise disposed of from Oct. 1, 1886, to Sept. 30, 1888, 719,563.44 acres of State lands, for which there were paid into the State treasury, in different kinds of funds, \$251,237.94. The State has 1,364,022.78 acres of lands, of different classes remaining to be sold.

Railroads.—According to official returns published in August, 1889, there are 2,063 miles of railroad in the State. The St. Louis, Arkansas, and Texas road controls 349 miles; the Iron Mountain road, 304 miles; and the Little Rock and Fort Smith road, 165 miles. These figures exclude branch roads. The total valuation of railroad property for 1889 was fixed by the State commissioners at \$18,106,558. In 1888 the valuation was \$17,455,205; in 1887, \$15,504,906.

Coal.—The State Geological Survey completed and published during the year a report upon the coal deposits of the State. It finds that there are two separate coal horizons or coal divisions. The upper or western coal-bearing division contains the workable coal in Scott, Sebastian, Crawford, western Logan, and western Franklin Counties; the lower or eastern division has its rocks dipping beneath those of the western division, and all the coal found east of Ozark and north of the Arkansas river in Franklin County, and all in eastern Logan, in Johnson, Pope, and Yell Counties belongs to this lower division. The coal of the lower division thins out to the west and has no workable beds in the western district. Coal mines are now worked in four separate districts, so-called, viz., in the Sebastian County district, the Coal Hill district, the Philpott district, and the Ouita district. In 1888 there were 978 men employed at these mines, and the output was valued at \$415,306 on the spot. For 1887 the product was estimated to be worth \$194,400, or less than half that of 1888. Bituminous, semi-bituminous, and semi-anthracite are the varieties found by the survey.

Lumber.—The value of the Arkansas lumber product for 1888 is estimated at \$17,000,000. Eight years ago it was nothing.

Election Frauds and Outrages.—Soon after the election for State and county officers in September, 1888, it was discovered that the office of the county clerk at Pulaski County (which includes the city of Little Rock) had been entered and the ballot-boxes and poll-books containing returns from nine townships had been stolen from the vault. The poll-books from three townships were subsequently returned, but their reliability had been destroyed. It was believed that all these returns were strongly in favor of the Republican candidates and would have shown the election of four Republican members of the Legislative Assembly and a Republican county treasurer. On the face of the returns that were not stolen, certificates of election were issued to the Democratic candidates, and their opponents in each case determined to dispute the validity of this action. The contest over the four seats in the Legislature was brought before the committee on elections of the Lower House, which held protracted hearings in the case. After considerable delay a decision was reached on Feb. 18, when the sitting members of Pulaski County, Coffman, Granberry, Walter, and Nickell resigned, and the committee at once made its report in favor of the Republican contestants—Thompson, Rice, Owens, and Morehart. This result had been urged by the press of the State, which had strongly denounced the theft, and was perhaps hastened by the political murder of the Hon. John M. Clayton. The Legislature, a few weeks previous, had offered a reward of \$500

for the capture of the poll-book thieves. In the contest over the office of county treasurer, the Republicans were less successful. The question was brought before the Pulaski County court in the case of *Jones vs Glidewell*, and in August a decision was rendered dismissing the application of the Republican contestant and confirming Glidewell in his office. In the same election, frauds were alleged to have been committed in many other places, and Norwood, the defeated candidate for Governor, appeared before the Legislature to contest the right of Governor Eagle to his seat, but withdrew his petition a few weeks later.

At the national election in November, 1888, similar acts of fraud and violence occurred. In the Second Congressional District the candidates were C. R. Breckinridge (Democrat) and John M. Clayton (Republican), both of whom had made a spirited canvass. The excitement was so great that affrays occurred at many polling-places, and in Conway County, at Plummerville precinct, the ballot-boxes were stolen soon after the closing of the polls. The official count of the whole district gave Breckinridge 5,201 votes and Clayton 4,369, but the latter claimed that the theft above mentioned and a general intimidation of the colored voters had caused this result, and prepared to contest the seat before Congress. For this purpose he again visited the district to secure testimony, where, on Jan. 29, while at Plummerville engaged in this work, he was assassinated by some unknown person. The news of this crime created great excitement in the State and astonishment beyond its borders. The victim, with his brothers, Gen. Powell Clayton and Judge W. H. H. Clayton, enjoyed a national reputation, and they had been known for many years as the leaders of the Republican party in Arkansas. The General Assembly immediately authorized the Governor to offer a reward of \$5,000 for the murderer, but without success.

On May 18 an election for school directors took place at Forest City in St. Francis County, in which the contest was virtually between the white and the colored candidates. One Neely, who was already a school director, was the leader of his colored companions, and on election day became engaged in a controversy with his opponents, which ended in the drawing of pistols and an affray in which three white citizens, including the deputy sheriff, were shot and killed. This was sufficient to bring together an excited mob of white citizens, who seized Neely and put him to death, although it was not probable that he was himself guilty of the shooting. Governor Eagle soon arrived on the ground with a detachment of State troops, and prevented any further outbreak.

Political.—The death of Associate-Justice W. W. Smith in December, 1888, left a vacancy on the State supreme bench, to fill which the Governor was authorized to call a special election. As the Legislature of this year had provided that two additional judges should also be chosen at this election, the political complexion of the court was at stake, the three members to be chosen constituting a majority. The Governor appointed April 2 as the date for the election. On March 14 the Republican State committee met at Little Rock and nominated County Judges

Lafayette Gregg and Charles E. Mitchell as candidates. For the third place it later approved the candidacy of County Judge W. F. Hill, an Independent, or Granger candidate. The Democrats met in State convention at the capital on March 21, and nominated M. H. Sandels to fill the vacancy, and ex-Governor Simon P. Hughes and William E. Hemingway for additional justices. The election failed to arouse the interest of the voters, only about 95,000 votes being cast, or about half as many as in the gubernatorial contest of 1888. Sandels received 52,925; Hemingway, 52,431; Hughes, 51,700; Gregg, 41,509; Mitchell, 41,615; and Hill, 40,962. In a drawing of lots between Hughes and Hemingway, as required by the act, to determine which should serve four years and which eight years, the longer term fell to Hughes.

ASSOCIATIONS FOR THE ADVANCEMENT OF SCIENCE. *American.*—The thirty-eighth annual meeting of the American Association for the Advancement of Science was held in Toronto, Ont., beginning on Aug. 27, and adjourning on Sept. 3, 1889. The officers under whom the meeting was held were the following:



T. C. MENDENHALL.

President, T. C. Mendenhall, of Terre Haute, Ind.; Vice-Presidents of sections: A, Mathematics and Astronomy, R. S. Woodward, of Washington, D. C.; B, Physics, H. S. Carhart, of Ann Arbor, Mich.; C, Chemistry, William L. Dudley, of Nashville, Tenn.; D, Mechanical Science and Engineering, James E. Denton, of Hoboken, N. J.; E, Geology and Geography, Charles A. White, of Washington, D. C.; F, Biology, George L. Goodale, of Cambridge, Mass.; H, Anthropology, Garriek Mallery, of Washington, D. C.; I, Economic Science and Statistics, Charles S. Hill, of Washington, D. C. Permanent Secretary, F. W. Putnam, of Cambridge, Mass.; General Secretary, C. Leo Mees, of Terre Haute, Ind.; Secretary of the Council, H. Carrington Bolton, of New York. Secretaries of the sections: A, G. C. Comstock, of Madison, Wis.; B, E. L. Nichols, of Ithaca, N. Y.; C, Edward Hart, of Easton, Pa.; D, W. D. Warner, of Cleveland, Ohio; E, John C. Branner, of Little Rock, Ark.; F, Amos W. Butler, of Brookville, Ind.;

H. W. M. Beauchamp, of Baldwinsville, N. Y.; I. J. R. Dodge, of Washington, D. C.

Opening Proceedings.—The proceedings began on Aug. 27 by a meeting of the council at 12 m. at the Queen's Hotel. On Aug. 28 the proceedings proper began. The use of the buildings of the University of Toronto had been tendered to and was accepted by the association. The general session met at 10 A. M. in the Convocation Hall. In the absence of J. W. Powell, the retiring president, the chair was taken by James D. Dana, who, after calling the meeting to order, resigned the chair in favor of T. C. Mendenhall, the president-elect. Addresses of welcome were delivered by the chairman of the local reception committee, Charles Carpmael; G. W. Ross, Minister of Education of Ontario; Mayor Clarke, of Toronto; and Chancellor Mulock, of the University of Toronto. After further routine proceedings the general meeting adjourned, and the sections proceeded to organize. The address of the retiring president, J. W. Powell, was read in his absence by G. K. Gilbert in the evening of this day.

Sections.—In the mathematical and astronomical section the vice-president, R. S. Woodward, spoke on "The Mathematical Theories of the Earth." He touched upon the questions of the shape, size, constitution, distribution of mass, internal heat, rate of cooling, and crust movements of our sphere. Various theories of cosmogony, also received his attention. Other important papers followed, one by E. S. Holden being a timely report on the work done at the Lick Observatory with the great telescope since June, 1888. Other reports on the Lick Observatory and the new Dearborn Observatory were read. Charles Carpmael read a proposition that the association should address the government officials of Canada and the United States and of other countries in diplomatic relations with them in favor of establishing a universal day of twenty-four hours, regulated by standard meridians.

In the physical section the vice-president, H. S. Carhart, spoke on "Theories of Electrical Action." He began by reviewing the early work of electrical students, of comparatively little value until Faraday theorized and Clerk Maxwell applied mathematics to those theories. The electro-magnetic theory of light was spoken of with special reference to Hertz's recent and classic investigations. The luminiferous ether, he said, is hereafter to be an element in electrical investigations. H. Carrington Bolton spoke of his recent trip to the peninsula of Sinai and the results of his investigations of deposits of musical sand in that region. Lantern views were used to illustrate his remarks, and the lecture was repeated to a large audience in the evening. Electric measurements were treated of by Elisha Gray, who compared the relative accuracies of different systems. Other papers were by T. C. Mendenhall on "Globular Lightning," being a plea for its actual existence, and by G. F. Barker on "Storage Batteries."

In the chemical section William L. Dudley, vice-president, spoke on the subject of "Amalgams." Reviewing the work in this field by chemists, he spoke of its inadequacy and of the necessity for study. The proceedings in this section, in addition to the various papers, took the

form of several discussions. The advisability of forming a national association of chemistry was considered, and the question of doing so was submitted to ballot and defeated by a single vote. It was felt that its establishment might interfere with the importance of Section C of the association. The terminology of the science was also discussed, including the spelling and pronouncing of terms. As the fruit of another discussion a resolution was passed recommending the introduction of the metric system in medical and pharmaceutical practice. A member was also appointed to confer with the American committee on international standards. M. A. Scovell read a paper on the estimation of total nitrogen by Kjeldahl's method, of interest to all agricultural chemists. Fred Hoffman read a paper on food preparations, especially those for infants, on which he estimated that ten million dollars were annually expended in the United States. The Government was urged to undertake the analysis of these foods, the healthfulness of many of which were doubtful. Harvey W. Wiley, chemist of the United States Department of Agriculture, in response thereto, agreed to undertake analyses of some of the products.

In the section of mechanical science and engineering, in which a change of vice-president and secretary occurred, several notable papers were read. Gustav Lindenthal spoke of his project for bridging the Hudson river, N. Y., at the city of New York, with a gigantic suspension bridge of 2,800 feet span. Fifteen million dollars was estimated as the cost of the structure, which should be made of steel. J. R. Dodge spoke on "Certain Aspects of Agriculture in the Arid Regions of the United States." Seventy million acres, he said, could be made fertile by irrigation, so as to exceed in productiveness the lands of the rainy regions. Government aid for the work was asked for by the speaker. O. Chanute treated the subject of the "Preservation of Timber." He estimated that in railroad-ties alone twenty-five million dollars are annually expended. He spoke of the relative efficacy of different kinds of preservatives.

In the geological and geographical section C. A. White delivered the vice-presidential address, on North American Mesozoic Rocks. The section had adjourned over Aug. 30 to enable its members to attend the meeting of the American Geological Society, presided over by James Hall, of Albany, N. Y., in the forenoon, and afterward by W. H. Winchell, of Minneapolis, Minn. Many papers were read in full or by title before the two gatherings.

In the biological section the vice-president, G. L. Goodale spoke on "Protoplasm, or Living Matter." He treated of the investigations made upon cellular tissue from the year 1667 down to the present time. C. V. Riley, recently honored by the French Government for his work in entomology in the United States Departments of the Interior and of Agriculture, spoke of the intentional importation of insect parasites that would destroy insects injurious to plant-life. Botanical and other topics were treated by various speakers. The new botanical laboratory of Barnard College, New York, N. Y., was described by N. L. Britton, who contributed three other papers to this section.

In the anthropological section Garrick Malery, in his vice-presidential address, touched on revelation and religion. He endeavored to show an analogy between the Indians of North America and the Israelites. A large quantity of interesting matter was included in the work of this section, usually one of the best of the meeting's divisions. The famous serpent-mound in Adams County, Ohio, was spoken of by F. W. Putnam, the permanent secretary of the association. It has been purchased, with seventy-five acres of land, and is under the charge of the Peabody Museum. The aborigines of America and the Japanese were treated of by various speakers. H. Carrington Bolton utilized his experiences in the desert of Sinai by explaining in this section an Egyptian game, Seega, which he learned from the Bedouins. The discovery of a new group of languages in California was announced by H. W. Henshaw, of the United States Bureau of Ethnology. Another contribution from the Bureau of Ethnology was the paper by W. J. Hoffman, on "The Middlewitin, or Grand Medicine Society of the Ojibwo." It is a regular secret society, and is of ethnological value as preserving many myths. The speaker has been promised full initiation into all the degrees.

In the section of economic science and statistics the vice-president, C. S. Hill, read an address on "Relations of the Canadian States and the United States." He spoke of the advantages of annexation for Canada, and warmly pleaded for it. He declared there was no future for Canada except in being joined to the United States. His address, delivered in such a city as Toronto, occasioned much criticism. Mrs. Nellie S. Kedzie, of the Kansas State Agricultural College, spoke on the subject "Food molds the Race." It was an eminently practical discussion on food preparation and adjustment of diet to personal needs. The importance of proper preparation of food was emphasized, and the teaching of cooking to the women of the land was declared to be of great importance. B. E. Fernow read a paper on "The National Interest in Material Resources." Forestry and other sources of national wealth were treated. As an expert on forestry he took strong exception to J. W. Powell's recently enunciated ideas on the destruction of forests. The latter scientist has announced his belief that their destruction rather favored arid regions in the matter of water-supply. The speaker announced his outspoken disagreement with any advocacy of forest destruction. The paper was discussed at some length, and eventually a resolution was passed asking Congress to adopt some means for preserving the Western forests.

Address of the Retiring President.—The address of J. W. Powell, the retiring president, was read by G. K. Gilbert. It was entitled "On the Evolution of Music—from the Dance to the Symphony." It was a long and eloquent treatment of the subject. He spoke of four germs of the fine arts—fetich carving the germ of statuary, tattooing the germ of painting, mythology the germ of the drama, and dancing the germ of music. The chain of thought was carried down from early days to Wagner. The music of the future was affirmed to be genuine; the address declared that Wagner and a few other great composers

had burst the bonds of musical dogmatism and sung their liberty in strains of transcendent music. The address abounded in poetry and sentiment, and was far from being a dry or abstruse document. One point of special interest was made to the effect that the ordinary laws of biotic elevation do not apply to man. His history is that of endeavors; there is no invariable survival of the fittest in the school of culture, neither is there to be found the law of adaptation to environment. Music was definitely declared to be the invention of mankind.

General Proceedings.—Various excursions to places of interest were indulged in, the Niagara river and Muskoka lakes being visited. Receptions and other attentions were tendered the body by the citizens of Toronto.

Resolutions of thanks to the Canadians for their hospitable treatment were presented by Professor Clark and seconded by Professors Eastman, Morse, Putnam, and Goodale. Responses were made by Sir Daniel Wilson, Mr. Ross, Professor Goldwin Smith, and Professor Carpmael.

Attendance, Election of Fellows, etc.—The attendance of members and associates was good, 424 being registered; 73 fellows and 201 new members were elected. One hundred and ninety-nine papers were read. An announcement of an investment of \$4,700 was made, whose income is to be devoted to encouraging scientific research.

Appropriations.—For the present year but \$200 was appropriated—\$150 to F. H. Morgan for investigations of the action of light in a magnetic field, and \$50 to W. O. Atwater for the analysis of certain animal and vegetable compounds.

Meeting of 1890.—The next annual meeting is to be held at Indianapolis, Ind., to begin on Aug. 19, 1890. The following officers were elected for that occasion:

President, Prof. George L. Goodale, Harvard University; Vice-Presidents: A, Mathematics and Astronomy, S. C. Chandler, Cambridge, Mass.; B, Physics, Cleveland Abbe, Washington, D. C.; C, Chemistry, R. B. Warder, Washington, D. C.; D, Mechanical Science and Engineering, James E. Denton, Hoboken, N. J.; E, Geology and Geography, John C. Branner, Little Rock, Ark.; F, Biology, C. S. Minot, Boston, Mass.; H, Anthropology, Frank Baker, Washington, D. C.; I, Economic Science and Statistics, J. R. Dodge, Washington, D. C.; Permanent Secretary, F. W. Putnam, Cambridge, Mass., office, Salem, Mass.; General Secretary, H. Carrington Bolton, of New York; Secretary of the Council, James Loudon, Toronto; Secretaries of the Sections: A, Wooster W. Beman, Ann Arbor, Mich.; B, W. Le Conte Stevens, Brooklyn, N. Y.; C, W. A. Noyes, Terra Haute, Ind.; D, M. E. Cooley, Ann Arbor, Mich.; E, Samuel Calvin, Iowa City, Iowa; F, John M. Coulter, Crawfordsville, Ind.; H, Joseph Jastrow, Madison, Wis.; I, S. Dana Horton, Pomeroy, Ohio; Treasurer, William Lilly, Mauch Chunk, Pa.; Auditors, Henry Wheatland, Salem, Mass.; Thomas Meehan, Germantown, Pa.

Donation.—At the closing meeting, on Sept. 3, a donation of \$500 from a lady member was announced.

British.—The British Association for the Advancement of Science held its fifty-ninth annual meeting at Newcastle-on-Tyne, beginning Sept. 11 and lasting until Sept. 18, 1889. It was the third meeting held in Newcastle, the last one having been held there in 1863. The list of pres-



W. H. FLOWER.

idents, etc., is as follows: President of the Association, Prof. W. H. Flower; Section Presidents: A, Mathematics and Physics, Capt. W. de W. Abney; B, Chemical Science, Sir J. Lowthian Bell; C, Geology, Prof. James Geike; D, Biology, Dr. J. S. Burdon-Sanderson; E, Geography, Col. Sir F. W. de Winton; F, Economic Science and Statistics, Prof. F. W. Edgeworth; G, Mechanical Science, Mr. W. Anderson; H, Anthropology, Prof. Sir. W. Turner; local secretaries for the meeting, Prof. J. Phillips Bedson and Prof. J. H. Merivalc. The Durham College of Medicine and St. George's Armory were used for the reception rooms, offices, lecture halls, etc.

General Meeting.—The first general meeting opened at 8 P. M., Sept. 11. Sir Frederick J. Bramwell the president of the preceding year resigned his chair to Prof. Flower, who delivered the presidential address.

The President's Address.—Prof. W. H. Flower devoted his long address to the subject of museums. The general consideration of museums from the standpoints of utility, of history, and of their relations to the state were first taken up. Some eminently practical suggestions on the divisions of science followed. Thus anthropology should not be restricted to savage and ancient nations, but should include all mankind in its survey. Under natural history should be included the experimental sciences, in exhibits of their apparatus, as well as mineralogy, zoölogy, botany, and geology. The latter was defined as a mixture of sciences, the unfortunate separation of paleontology from biology being perpetuated in it. Then the practical question of how to establish a museum was considered, the curator and his staff being the life and soul of the institution. The ill effects of neglect and the necessity for the continual and tender care of specimens were graphically portrayed. The systematic arrangement and labeling of divisions, subdivisions, and specimens in museums for the public was described. A well-arranged educational museum may be described as a collection

of descriptive labels illustrated by well-selected specimens. The smallest collections can thus be made useful. The public museum must be on a different basis from the student's museum, the patrons of the latter class needing free access to specimens. The concluding portions of his paper were devoted to the outlook of the origin of species, the speaker announcing himself in full accord with Darwinism.

Sections.—A. *Mathematical and Physical Science.*—Capt. W. de W. Abney, the president of this section, naturally spoke of photography, his own standing in that branch of science giving his remarks a special value. He began by saying that photography should be more thoroughly studied. Optics, chemistry, physics, mathematics, all were elements in its operations, yet out of twenty-five thousand photographers, scarcely one per cent. know or care anything about its theory. One hundred years ago the Swedish chemist Scheele made, perhaps, the first scientific experiment in photography, investigating the coloration of chloride of silver when exposed to the light. About fifty years ago Sir John Herschel, Robert Hunt, Becquerel, Draper, and others performed their classic experiments on the action of light on different bodies. The work of Carey Lea, of Philadelphia, on his photochloride of silver, and the parallel work of Hodgkinson were spoken of. The measure of success attained in photographing the solar spectrum in its natural colors was described, but true natural-color photography, the speaker believed, would never be commercially successful. He ended by a restatement of his opening remarks, in which he pleaded for more scientists to take up its study.

B. *Chemical Science.*—Sir J. Lowthian Bell spoke upon chemistry in the technical and educational senses. The advantages reaped from chemistry by the iron manufacturers were forcibly portrayed. Under the chemist's guidance more advance had been made by iron-workers in the last thirty years than in the three previous centuries. He then took up the question of chemical and scientific education. He was disposed to take issue with the idea of teaching the rudiments of science to all children, and expecting direct good to follow in practice. He advocated extending the knowledge possessed by the highly educated directors of the world's industrial establishments. The erection and maintenance of suitable colleges, he believed, should be in the hands of the nation at large.

C. *Geology.*—Prof. James Geike, the president of this section, spoke of the recent work of Continental geologists. He summarized the results of their investigations of glacial accumulations of northern Europe. His address does not lend itself well to summarizing, but one especially interesting suggestion was made. It was to the effect that the meteorologist, by studying climatic changes, their causes, etc., would bear a part in explaining geological changes. He prophesied that the mystery of geological climates would ultimately be solved.

D. *Biology.*—Dr. J. S. Burdon-Sanderson being absent through illness, his address, as president of the section, was read by the Rev. Canon Tristram, one of the vice-presidents. Morphology and physiology, the two great branches of

biology, are now so widely divergent, the address said, that they threaten to completely separate. The work of the advanced school of physiology was the opening theme, and the processes of growth and of nutrition, the two great characteristics of life, were considered. The invisible mechanism of life is what the physiologist thirsts to know. The utter mystery surrounding the cell mechanism removes the danger of physiological studies leading students to regard material science as the sum of all knowledge. He distinguished between the work of physiologists and philosophers, and said that as one of the former, he felt more disposed to lend his aid to the philosopher in his study of the spiritual elements of existence.

E. Geography.—Col. Sir F. W. de Winton reviewed the recent work of practical geographers, missionaries, chartered companies, and explorers. He said he should like to see a geographical society in every large city of the British Empire, holding that geographical study is too much neglected. Commercial geography was being studied by other nations, and was enabling them to compete with England. This he urged as showing the necessity of its study if the prestige of England was to be maintained in the world of commerce.

F. Economic Science and Statistics.—The president of this section, Prof. F. W. Edgeworth, on opening his address, referred to the Cambridge meeting of the association held twenty-five years ago. On that occasion Jevons presented his "general mathematical theory of political economy," received, as Jevons himself records, "without a word of interest or belief." But in modern work the same mathematical view is taken of this science—one as fairly entitled to numerical treatment as is statistics. The relations of employer and employé were considered, and the various statements often promulgated were gone over. In theory, at least, it was tenable that there was an adjustment of contracts more beneficent than that which the mechanical play of competition tends to bring about. In concluding, the speaker stated that, compared with mathematical physics, the mathematical theory of political economy showed many deficiencies.

G. Mechanical Science.—Mr. W. Anderson, president of the section, spoke upon the molecular structure of matter. Mechanics, he said, were called upon to interest themselves more deeply than hitherto in the internal molecular structure of their materials of construction. The influence of light and electricity upon matter was treated in some detail, together with explosives and similar illustrations of the susceptibility of matter to molecular change. The tempering of steel was cited, and used to show the application of theory to its explanation.

H. Anthropology.—Prof. Sir W. Turner reviewed the subject of heredity. Like tends to produce like was said by Galton. Yet heredity was never complete, the individual asserting itself through all inherited characteristics. Intimately connected with heredity is its opposite variability. Prof. Weismann's ingenious suggestions for reconciliation of the two was alluded to. The Darwinian theory was reviewed and summarized as heredity modified and influenced by variability. The physical aspect of the

question by no means covers the whole ground of man's nature, for in him is recognized the presence of an element beyond and above his spiritual nature; he is also endowed with a spiritual nature. The kind of evolution to be hoped for and striven for in man is the perfecting of this spiritual nature, so that the standard of the whole human race may be elevated and brought into more harmonious relations with that which is holy and divine.

Reports of Committees.—A very large number of these were presented. The committee on earthquakes devoted their report to the earthquakes in Japan, giving exact seismographical data and general features of the more important. The committee on tidal observations in Canada reported nothing done owing to want of funds. The committee on magnetization of iron devoted their report principally to recalculation. The report of the committee on methods of teaching chemistry came to the conclusion that it was a mistake to attempt to do too much in elementary schools; that teaching there should be restricted to common things. The committee on the best method of establishing an international standard for the analysis of iron and steel reported progress, and hoped by the next meeting to have more to report on. The committees, of which a large number reported progress, generally were in a similar state.

Places of Future Meetings.—The meeting of 1890 is to open Sept. 3 at Leeds, under the presidency of Sir F. A. Abel. The meeting of 1891 will be held at Cardiff, and that of 1892 probably at Edinburgh.

Attendance, etc.—The attendance was 2,431. Public lectures, *soirées*, and excursions were a part of the proceedings. Prof. W. C. Roberts-Austen gave a public lecture, Sept. 13th, on "The Hardening and Tempering of Steel." Sir Benjamin Baker, on the succeeding day, lectured on "The Forth Bridge." On Sept. 16 Mr. Walter Gardner gave a lecture on the subject of "How Plants maintain themselves in the Struggle for Existence."

Appropriations.—The grants awarded for scientific research distributed among the various sections aggregated the sum of £1,265.

French.—The eighteenth annual meeting of the French Association for the Advancement of Science began on Aug. 8, 1889, in Paris, France. The first meeting was held in the large hall of the Palais de Sociétés Savantes.

President's Address.—The president of the association was M. de Lacaze Duthiers, who spoke on "The Development of Zoölogical Method." He thanked the municipality of Paris for their invitation and their generous subvention, amounting to nearly \$6,000, recently voted toward paying the expenses of the association. He described the origin of the society in 1871, when, one day in July, M. Wurtz, the eminent chemist, had a few friends meet at his house and outlined the plan of what the association has since become. He then began upon his proper theme of natural history. He described the state of the science a century ago, in the days of Linnaeus and Buffon, the first an expositor of facts, the latter of theories. Cuvier made an important advance in taking into consideration the internal construction of beings, where hitherto

the external appearance had been everything. To-day we have gone beyond all this. We seek to understand the mutual relations of beings, or their enchainment, to trace the relationships of descent and ascent. The speaker paid a high tribute to Darwin as the one who at least started the new school into activity and made Lamarek's ideas attain their true position. To curb the imagination, apt to yield too readily to the seductions of the modern zoölogy, experimental research is needed. Transformism and metamorphosis are to be studied. Various instances of such researches were given, and in an eloquent peroration the year's work of the association and its standing in the scientific world were stated. The speaker was enthusiastically cheered.

Treasurer's Report.—After his address, the treasurer's report was presented, showing in round numbers that the receipts for the year had been \$18,800; expenditures, \$17,400; total capital, \$165,300. M. Girard has left the association \$35,000 for the promotion of researches on prehistoric man. A report was presented and read of the meeting of 1888 at Orléans, and the meeting adjourned to the École des Ponts et Chaussées, where the sections met.

General Proceedings.—The French Association is subdivided into seventeen sections and sub-sections: 1 and 2, Mathematics and Astronomy; 3 and 4, Civil and Military Engineering and Navigation; 5, Physics; 6, Chemistry; 7, Meteorology; 8, Geology and Mineralogy; 9, Botany; 10, Zoölogy, Anatomy, and Physiology; 11, Anthropology; 12, Medical Science; 13, Agriculture; 14, Geography; 15, Political Economy; 16, Pedagogy; 17, Hygiene.

A very large number of papers were read in these divisions. An additional feature of section work was the visiting of different industrial establishments and objects of specific interest. Thus sections 1 and 2 inspected the collection of calculating machines at the Conservatoire des Arts et Métiers, under the guidance of M. Ed. Lucas. The new dirigible balloons invented by Commandant Renard, and the exhibition of the Minister of War, were inspected by sections 3 and 4. Section 6 inspected the exhibition of chemical products at the Exposition, MM. De Clermont, Riche, Luilliot, Billandt, Istrati, and others, giving general explanations. Other equally interesting visits were made by this and the other sections—the Pasteur Institute, sewers of the city, gas works, etc., being objective points. On Thursday, Aug. 8 the splendid suite of rooms of the Municipality of Paris at the Hôtel de Ville was thrown open, some 8,000 guests in all, including the members of the association, the students, and others, being present by invitation.

M. Yves Guyot, Minister of Public Works, with Mme. Guyot, received the members at the Ministry in the Boulevard St. Germain, on the evening of Aug. 9. On Aug. 11 St. Germain-en-Laye and Meudon were visited, including the Observatory, under the directorship of M. Jaussen. On Aug. 12 General Tchong-Ki-Tong gave a lecture on the "Social Economy of China." On Aug. 14 the association gave a banquet to its foreign members in the Eiffel Tower. On Aug. 16 the paper works at Essonne and the works of M. Decanville, contractor for the narrow-gauge railway in operation

on the grounds of the Exposition were visited. The meeting then ended.

The secretary and vice-secretary of the association at this meeting were Prof. Gariel and Dr. Cartaz respectively.

The meeting of 1890 is to be held at Limoges.

ASTRONOMICAL PROGRESS AND DISCOVERY. During 1889 the astronomical event that attracted most general attention was the total eclipse of the sun, on New Year's day, visible in California and the Western States. The average number of new asteroids and comets was discovered, among the latter being a comet of more than ordinary interest on account of its segmentation into several distinct nebulous masses. In regard to improvements in astronomical methods, the chief interest centers in the development of celestial photography. Valuable papers on the older or gravitational astronomy have been published, while the popular appreciation of the science is shown by the multiplication of amateur astronomical societies, and by the increased endowment for astronomical research.

American Observatories.—The Harvard Observatory has received from Miss C. W. Bruce, of New York, a gift of \$50,000, to be applied to the construction and maintenance of a photographic telescope having an objective of about 24-inches aperture and a focal length of 11 feet. The compound lens, which will probably cost \$20,000, is to be like that used by photographers, rather than like that of an astronomical telescope. Its small focal length, compared with its diameter, will give photographic images of much fainter stars than the latter. A telescope of the proposed form having an aperture of 8 inches has been in constant use in Cambridge for four years, and is now in Peru photographing the southern sky; with it stars too faint to be seen with the 15-inch refractor have been photographed, and a corresponding advantage is anticipated from the increase of the aperture to 24 inches. Each photograph will be 13 inches square and will cover an area of the sky five degrees square, on the scale of one minute to a millimetre. It is proposed to construct the lens so that the front portion may form a photographic objective and may be reversible and adapted for either visual or photographic purposes. The telescope may then be used in three ways—for visual purposes as a telescope of 24-inches aperture and 17 feet focal length, as a single photographic lens of the same dimensions, and as a photographic doublet covering a large field and having a focal length of 11 feet. A prism covering the lens, for the examination of spectra, may be used in each case, making six instruments in one.

Prof. Edward C. Pickering proposes to establish this instrument upon some high mountain, where the best meteorological conditions prevail, the work of reduction and discussion being done at Cambridge. The entire cost of the combination instrument and a small building for its protection is estimated at \$35,000, leaving \$15,000 for the attending expenses of reduction and publication (which would probably amount to \$5,000 a year) sufficient to secure photographs of the entire northern sky.

The work of the Naval Observatory at Washington has been a continuation of the routine

of previous years, consisting of observations of double stars and satellites; observations for stellar parallax, with a series of drawings of Saturn by Prof. Asaph Hall; observations completing a catalogue of miscellaneous stars which has been in process of formation ever since the transit circle was mounted in 1866; observations of comets, asteroids, and occultations with the 9-inch equatorial; and the maintenance of the extensive time-service, the magnetic observations, and the testing of instruments for the naval service.

Progress on the new buildings on the heights beyond Georgetown has been somewhat delayed, but the foundation walls of the main building and the greater part of the building for the 26-inch refractor were completed by the close of the year.

The long disused observatory of Georgetown College, founded in 1846, and famous for the early labors of Secchi and Sestini, has been thoroughly repaired under the supervision of the new director, Father J. G. Hagen, S. J., and important additions have been made to the equipment. For the present, observations are confined mainly to southern variables.

At the Yale Observatory Dr. William L. Elkin has completed the heliometer measures for the triangulation of the region near the north pole, and a few observations of Iris, Victoria, and Sappho were obtained for the determination of the solar parallax in co-operation with the observatories at the Cape of Good Hope and at Leipsie. The heliometers at Bamberg and Göttingen will probably co-operate in the observations of Victoria and Sappho, and meridian observations at other observatories may also be obtained. Mr. Asaph Hall, Jr., has completed the reduction of his work on the orbit of Titan, his result being in very satisfactory agreement with the results of Bessel and Hermann Struve.

The Cincinnati Observatory has a new meridian circle of 5½ inches aperture, the objective being by Clark, and the mounting by Fauth & Co. The instrument does not differ materially from the Repsold type, and as far as Prof. J. G. Porter's investigations have gone, it compares well with the latter as an instrument of precision. The object-glass and micrometer ends are interchangeable; the cell of the object-glass is of steel, the lens being supported at three points. The telescope carries two circles of 24 inches diameter, one divided coarsely to half degrees, the other having two sets of graduations upon a silver band, both of them to five minutes of arc. The errors of graduation are found to be extremely small.

At the Lick Observatory, Mr. J. M. Schaeberle has been observing fundamental stars with the meridian circle, Mr. Charles B. Hill has charge of the time service, and Mr. J. E. Keeler is engaged with the spectroscope. Mr. E. E. Barnard has been diligently at work upon the sun and nebulae with the 12-inch equatorial, and has made experiments in astronomical photography with the 36-inch. His discoveries of comets are reported elsewhere. Mr. S. W. Burnham has discovered and measured a number of faint double stars.

A still larger refractor than the Lick telescope has been projected—one of 40 inches aper-

ture, for the University of Southern California at Los Angeles, and a bill was introduced in Congress at the last session making provision for a refractor of five feet aperture, which was to be mounted at the United States Naval Observatory. It is understood that the glass for the 40-inch lens has been ordered by Clark, the sum of \$200,000 being available for the contemplated observatory, sufficient, probably, to meet the cost of the instrument. The scheme for the five-foot lens never received any support from the Government astronomers.

The disks for the 20-inch equatorial of the Chamberlin Observatory, Denver, have been cast by Mantois at Paris, and will be worked by Clark. The mounting is well under way at the shop of Fauth & Co., of Washington. An illustrated description of the new Dearborn Observatory, at Evanston, Ill., will be found in the "Sidereal Messenger" for October, 1889.

The fiftieth anniversary of the dedication of the Hopkins Observatory of Williams College was celebrated in 1888, a discourse upon "The Development of Astronomy in the United States" being delivered by Prof. Truman H. Safford. The Hopkins Observatory seems entitled to the honor of being the first permanent American observatory, having been projected about 1834, chiefly built in 1837, and dedicated on June 12, 1838. The University of North Carolina had built an observatory in 1831, and had provided an excellent instrumental equipment, but in 1838 the building was partially destroyed by fire, and little or no work was ever done with the instruments.

Prof. Samuel P. Langley has devised an apparatus for eliminating personal equation, especially in the observation of sudden phenomena, such as the disappearance of a star when occulted by the moon. The principle of the method consists in associating a motion, real or apparent, of the object with intervals of time, so that the apparent position of the object at the instant of the occurrence of any phenomenon being noted, the time of the occurrence will be known. Experiments made with artificial stars, which were given an apparent rotary motion about the axis of the observing telescope by a suitably arranged revolving prism, show that it was quite possible for a comparatively inexperienced person to observe an occultation with a probable error of only one fortieth of a second.

A valuable series of papers on personal equation has been contributed by Dr. E. C. Sanford to the "American Journal of Psychology," vol. ii.

Dr. W. Wislicenus, of Strasburg Observatory, has published an interesting account of a series of investigations made to determine the absolute personal equation in transit observations, not only for the horizontal position of the telescope, but for all inclinations. In the form of meridian circles made by Repsold, a little mirror can be cemented to the inner surface of the object-glass so as to reflect toward the eye end a portion of the light from the cube of the instrument. By placing a small convex lens behind the ocular, an artificial star is obtained which is easily moved in the plane of the reticule with a velocity corresponding to any declination. Dr. Wislicenus concludes from his experiments with this apparatus that the incli-

nation of the telescope has a considerable effect upon the observer's personal equation.

Foreign Observatories.—The Astronomer Royal reports that the routine work of the Greenwich Observatory—the determination of the positions of the sun, moon, planets, and a selected list of fixed stars, and magnetical, meteorological, and solar observations—has been continued as in previous years. A new dome has been built for a 13-inch photographic equatorial, Greenwich being one of the observatories to take part in the international photographic chart of the heavens, and progress has been made by Sir Howard Grubb in working the disks of the 28-inch refractor which is to be on the Stokes-Pickering plan, adapted to photography as well as to eye observations—a useful result, accomplished by making the crown lens reversible in its cell to get rid of the spherical aberration which is introduced by the separation of the lenses necessary for photographic correction. The observations for a redetermination of the difference of longitude between Paris and Greenwich were completed in the autumn of 1888.

Prof. Piazz Smyth has resigned the appointments (which he has held since 1846) of Regius Professor of Practical Astronomy in the University of Edinburgh and Astronomer Royal for Scotland, and he has been succeeded by Dr. Ralph Copeland, of Dunecht. The Dunsink Observatory has a new reflecting telescope of 15 inches aperture, the gift of Isaac Roberts, which is to be applied to photographic researches upon stellar parallax, a field of investigation which has particularly engaged the attention of Prof. C. Pritchard at Oxford. Prof. Pritchard reports that preparations for taking part in the international scheme for photographing the heavens are well advanced.

Cambridge University, England, has received a most valuable acquisition to its instrumental equipment in a 25-inch refractor, the gift of Mr. Newall.

At Paris the most important addition to the instruments is the apparatus devised by M. Loewy for the investigation of the constants of aberration and refraction: a new determination of the latitude is in progress, and the Henry brothers continue their experiments in celestial photography.

A new observatory, with a 10½-inch Repsold refractor and 4·8-inch Repsold meridian circle, has been established at Vienna by Herr von Kuffner, and an admirably equipped observatory, founded by Dr. Carl Rameis, has been built at Bamberg. It is reported that the Pope has decided to establish a new observatory at the Vatican, which will probably cost \$200,000.

An observatory has been founded at Tokio, Japan, under the direction of H. Terao, by combining the astronomical departments of the old marine observatory, the observatory of the Ministry of the Interior, and that of the imperial university. The principal instruments are a 5½-inch transit, 5-inch meridian circle, and equatorials of 7-inches and 8-inches aperture.

Astronomical Photography.—Prof. Pickering has published a research upon the brightness of stars as determined photographically, taking up the examination of three regions of the sky for the formation of preliminary standards.

These are the Pleiades, the region around the pole, and a number of stars along the equator. His results are satisfactory, and it seems likely that if the errors in the photograph plates themselves can be eliminated, the subsequent estimation of a star's magnitude can in this way be made at least as accurately as by the ordinary photometric methods.

Dr. Elkin has compared Gould's reductions of Lewis M. Rutherford's photographs of the Pleiades, taken over twenty years ago, with measures made by the heliometers at Königsberg and New Haven. The smallness of the probable errors Dr. Elkin regards as a convincing proof that in photography we have a means of investigation for micrometric work at least equal to any existing method as regards exactitude, and doubtless far surpassing them in ease of measurement and output of work. In this conclusion he is strengthened by experiments made with the 36-inch equatorial at the Lick Observatory, in conjunction with Messrs. Burnham and Barnard.

International Astro-photographic Congress.—The work of the Permanent Committee of the International Photographic Congress, organized at Paris in 1887, has been prosecuted with vigor. The general plan of the undertaking, the object of which is to provide a photographic map of the whole sky which shall include stars as faint as the fourteenth magnitude, has been described in the "Annual Cyclopædia" for 1887. Since that time four numbers of a "Bulletin" have been published, under the auspices of the Institut de France, containing reports of preliminary experiments and correspondence relating to the details of the work. At the meeting of the Permanent Committee in September, 1889, it was decided to adopt a field 2° square for the photographic plates. The question of the reproduction of the plates and of the publication of the map was left open, but it is probable that one or more bureaux will be established for measuring the negatives obtained at observatories not provided with special apparatus for the purpose, and photographic copies of all plates will be preserved in selected places in case of accident to the original negatives. A series of standard plates will be prepared by the Paris Observatory, and the time of exposure must be adjusted so as to compare properly with these standards.

Thus far no observatory in the United States is upon the list in the assignment of zones. A bill was introduced in Congress for the purpose of enabling the United States Naval Observatory to undertake a share of the work, but none of the private observatories have signified their intention of co-operating. This is partly due without doubt to the considerable expense involved, but it is also due to the fact that there is in the minds of some astronomers most competent to judge, a doubt as to whether the best form of telescope has been selected by the Congress: moreover, the main difficulty seems to lie not in obtaining the photographs, but in reproducing and measuring them, and in converting the measures into right ascension and declination, so that they may be of practical value.

Among the papers of interest in the fourth part of the "Bulletin" referred to, is one by Dr. H. C. Vogel, describing the photographic refract-

or recently constructed for the observatory at Potsdam by the Repsolds. This instrument has two objectives; eye-piece and plate-holder are in the same tube, conforming to the resolutions of the Congress in 1887, but the peculiarity is in the form of mounting, which is quite different from both the English and the French forms. The pillar that supports the polar axis is not upright, but L-shaped, the lower part being inclined nearly in the plane of the equator, the upper almost at right angles to this, extending toward the north pole and inclosing the polar axis. The support possesses very great stability, and its form permits an uninterrupted motion of the telescope in all positions.

The seven instruments the construction of which was given to Messrs. Henry and Gautier are finished. The three destined for the observatories of Bordeaux, Toulouse, and Algiers have been delivered, and the four for La Plata, Santiago, Rio de Janeiro, and San Fernando are also finished and in course of shipment. These seven observatories, with that of Paris, will be ready to commence work in the first half of the coming year. Another paper of great interest is contributed to the same number of the "Bulletin" by Herr Reuz, of the Pulkowa Observatory, who has used a negative by the Henrys for determining the places of the stars occulted by the moon on Jan. 28, 1888; he finds that they compare satisfactorily with such meridian observations as are available.

The committee—Messrs. J. Janssen and A. A. Common—to whom was referred the question of organizing and co-ordinating the work of those interested in various branches of astronomical photography other than the chart of the sky, issued in June, 1889, a circular to astronomers calling a meeting at Paris on the 22d of August. This meeting was subsequently postponed to Sept. 20. The circular referred to the desirability of obtaining a complete photographic record of solar phenomena; photographs of the solar spectrum; a systematic description of the lunar surface by photography on a large scale; photographs of planets and their satellites, both descriptive and for the purpose of measurements; photographs of meteors, comets, and particularly of nebulae, clusters, and of stellar spectra.

Motion of the Solar System in Space.—An important contribution to our knowledge of the motion of the sun with its attendant planets through space is given by Dr. Ludwig Struve in a paper published in the memoirs of the St. Petersburg Academy. Dr. Struve takes as the basis of his investigation the proper motions of over 2,500 stars derived from a comparison of the Pulkowa catalogues of 1855 with Auwers's reduction of Bradley, 1755. He finds that the solar system is moving toward a point in the constellation Hercules, the co-ordinates of which are right ascension $273^{\circ}3'$, declination $+27^{\circ}3'$, the amount of the motion in one hundred years being $4^{\circ}36'$, as seen from an average sixth-magnitude star. The actual velocity corresponding to this is about thirteen miles a second. By combining his result with those of other investigators, Dr. Struve adopts as the most trustworthy co-ordinates of the sun's "goal," to use a term introduced by Prof. Herbert A. Newton in connection with the motions of meteors,

$A = 266^{\circ}7'$ and $D = +31^{\circ}0'$. This point is still in the constellation Hercules, and the mean velocity is found to be fifteen miles a second.

Eclipses of 1889.—During 1889 the ephemeris shows three eclipses of the sun—Jan. 1, June 27, and Dec. 21—the first and last total, the second annular; and two eclipses of the moon—Jan. 16 and July 12. The solar eclipse of January, the last total solar eclipse visible in the United States in this century, was very successfully observed in California and Nevada, and a somewhat detailed account of the observations is given below. The eclipse of the moon on Jan. 16 was observed at Lick Observatory, but nothing of interest was noted. Dr. Arthur Auwers and Dr. David Gill, at the Cape of Good Hope, obtained measures of cusps with the heliometer during the annular eclipse of June 27. Of the partial eclipse of the moon on July 12 nothing of interest is reported. For observing the total solar eclipse on Dec. 21, three stations are available—the southwest corner of the island of Trinidad, where totality will last for $1^m 46^s$, the sun's altitude being 12° ; Cayenne on the coast of French Guiana, totality $2^m 3^s$, altitude 24° ; and a point on the western coast of Africa about 100 miles south of St. Paul de Loanda, totality there lasting $3^m 12^s$, with the sun at an altitude of 46° . It is all the more desirable to make the most of this eclipse, as another total eclipse of the sun will not occur till April, 1893. A party has therefore been sent out by the United States Government to the western coast of Africa, and a party from Lick Observatory will occupy a station at Cayenne. Other stations will be occupied by parties from England and the Continent.

The Total Solar Eclipse of Jan. 1, 1889.—The event of chief astronomical interest in 1889 was the total eclipse of the sun, which occurred on New Year's day. The moon's shadow first touched the earth at a point not far from the Aleutian Islands, and passed southeast and then northeast, striking the mainland at Point Arena, Cal., where totality began at 1.30 P. M., and lasted two minutes. The line of central eclipse then crossed California, Nevada, Idaho, Wyoming, Montana, and Dakota, and finally left the earth at a point about in the center of Manitoba, the duration of totality diminishing as the shadow moved east from Point Arena. In California the average width of the belt of totality was about 96 miles, in Nevada 90, Idaho 82, and Montana 66 miles. The partial phases of the eclipse were visible over the greater part of North America, the first contact being observed at Washington, a few minutes before sunset.

Ample preparations were made for utilizing to the utmost the less than two minutes of totality. Carefully prepared suggestions and instructions were issued by Lick Observatory and by Prof. David P. Todd, of Amherst, for enlisting the interest of as many amateur astronomers and photographers as possible, and, as the weather was generally favorable, the result was a great number of sketches, photographs, and miscellaneous observations. The most thoroughly equipped party in the field was that from Harvard Observatory, under charge of William H. Pickering, at Willows, Cal. This party alone secured between 50 and 60 photo-

graphs, taken with 14 telescopes or cameras and 8 spectroscopes, one of the telescopes being of 13-inches aperture, the largest ever used in observing a total eclipse of the sun. Through



ECLIPSE OF THE SUN, JANUARY 1, 1889.

the kindness of Prof. Pickering, we are able to reproduce a photograph taken with this instrument, which shows wonderfully well the filamentous structure of the corona.

A party from Lick Observatory, under Mr. Keeler, was at Bartlett Springs; one from Washington University Observatory, St. Louis, under Prof. Henry S. Pritchett, at Norman; one from Carleton College, at Chico; and many other available points were occupied by individual astronomers or photographers. At Cloverdale, the Pacific Coast Amateur Photographic Association was represented by thirty cameras.

A report from Lick Observatory, containing the observations of the Lick party at Bartlett Springs, and also reports from many co-operators all over the State, including those from the Amateur Photographic Association, has been published with characteristic promptness by Prof. Edward S. Holden. The Smithsonian Institution has published a series of photographs of the corona on a uniform scale, copied from a collection of positives on glass kindly presented by various observers, and has also published a suggestive paper by Prof. Frank Bigelow, wherein he traces a close agreement between magnetic lines of force computed for the sun, and the curves of the polar filaments shown upon the Pickering photograph. The detailed report of the Harvard party has not yet appeared. Prof. H. A. Howe, of Chamberlin Observatory, at Denver, describes his own observations and those of his co-operators at Winnemucca, Nev., as the initial publication of his new observatory, and many preliminary reports are contained in current journals. The frontispiece of Lick Observatory report is an admirable photograph of the corona by Barnard, which seems to compare favorably with Pickering's, though one was taken with an object-glass of 13-inches aperture specially made for the purpose, and the other with a little telescope of 3½-inches aperture stopped down to 1¼ inch and

uncorrected for photography. The volume contains also a careful study by Prof. Holden of Barnard's photographs and of all the photographs and sketches transmitted to Lick Observatory. We quote briefly Prof. Holden's conclusions, which may be regarded as representing the results from this eclipse as far as they are at present attainable:

I. That the characteristic coronal forms seem to vary periodically as the sun spots (and auroras) vary in frequency, and that the coronas of 1867, 1878, and 1889 are of the same strongly marked type, which corresponds, therefore, to an epoch of minimum solar activity.

II. That so-called "polar" rays exist at all latitudes on the sun's surface, and are better seen at the poles of the sun, simply because they are there projected against the dark background of the sky, and not against the equatorial extensions of the outer corona. There appears to be also a second kind of rays or beams that are connected with the wing-like extensions. These latter are parts of the "groups of synclinal structure" of Mr. Ranyard.

III. The outer corona of 1889 terminated in branching forms. These branching forms of the outer corona suggest the presence of streams of meteorites near the sun, which, by their reflected light and by their native brilliancy, due to the collisions of their individual members, may account for the phenomena of the outer corona.

IV. The disposition of the extensions of the outer corona along and very near the plane of the ecliptic might seem to show that, if the streams of meteorites above referred to really exist, they have long been integral parts of the solar system.

NOTE.—The conclusions III and IV appear to be contradictory to that expressed in I. The electrical theory announced by Dr. Huggins in the Bakerian lecture for 1885 seems to reconcile the conclusions I, III, and IV.

V. The photographs of the corona which were taken just before contact II and just after contact III prove the corona to be a solar appendage, and are fatal to the theory that any large part of the coronal forms are produced by diffraction. . . .

VI. The spectroscopic observations of Mr. Keeler show conclusively that the length of a coronal line is not always an indication of the depth of the gaseous coronal atmosphere of the sun at that point, and hence to indicate the important conclusion that the true atmosphere of the sun may be comparatively shallow.

VII. Mr. Keeler draws the further conclusion in his report . . . that the "polar" rays are due to beams of light from brighter areas of the sun illuminating the suspended particles of the sun's gaseous envelopes.

In order that this conclusion may stand, it is necessary to show that all these "polar" beams are composed of rectilinear rays. . . . An important conclusion from [the photographic and photometric] measures seems to be that it is impracticable to photograph the corona in full sunshine with our present plates, and that a photographic search for Vulcan is hopeless.

The Sun.—H. Crew, whose observations of the rotation of the sun were noted in last year's summary, has recently made a new series of observations for the correction or confirmation of the conclusion that the angular velocity of rotation increases with an increase of latitude. He still finds shorter rotation periods for the higher latitudes, the mean value for the period at latitude 45° being eighteen hours shorter than at the equator, but, owing to the smallness of this difference and to the uncertainty of the observations, he is of the opinion that "no certain variation of period with latitude has been detected with the spectroscope." Attention is called.

however, to the wide differences of the equatorial period as obtained by different methods—differences that may be due to the fact that we are really dealing with different strata of the sun, though here, also, too much reliance must not be placed upon the observations.

During 1888 sun-spots were few, small, and in low latitudes, and there were frequent intervals in which no spots at all were seen—longer intervals, in fact, than any since the minimum of 1879. The most prolific month as to entire spotted area, though not as to number of spots, was November, following immediately a long period of quiescence. There was a rough tendency of spots to certain solar longitudes; and in latitude they continued to be more numerous in the southern than in the northern hemisphere. Faculae did not vary simultaneously with spots, but their diminution as compared with 1886 and 1887 was slight. They showed a very noticeable development during the secondary maximum of September, while the prominences fell off considerably both in September and November, but attained their greatest development in March and April.

Planetary Tables.—An important and laborious work is being carried on by Prof. Simon Newcomb, consisting of the redetermination of the elements of all the large planets from the best and most recent observations, and of the construction of tables founded on uniform data. This involves an immense amount of computation, including the re-reduction of the older planetary observations and the discussion of the later ones, with a view of reducing them all to a uniform system. Another branch of this planetary work is a determination of the mass of Jupiter from the motions of Polyhymnia, and a comparison of Hansen's tables of the moon, with observed occultations since 1750.

In commenting upon recent determinations of planetary masses from the motions of comets, Prof. Hall says: "The objection to deducing values of planetary masses from the motions of comets consists, I think, in the fact that apparently other forces than that of gravitation act on these bodies. As a comet approaches the sun it changes form, disintegrates, and matter is thrown off to form a tail. Until we know more of the theory of these changes, the computation of masses from the motions of comets and inferences about the resisting medium in space must be uncertain."

The Earth.—M. A. Ricco has called attention to a phenomenon that gives a striking proof of the rotundity of the earth, though it has hardly been noticed hitherto. At the Observatory of Palermo, which is $1\frac{1}{4}$ miles from the Mediterranean Sea and 236.2 feet above its level, a great number of photographs of the sun, reflected from the surface of the water, have been taken a few minutes after rising or before setting, and they show that the diameter in the plane of reflection is less in the reflected image than in the direct. This deformity is due to the fact that the surface of the water forms a cylindrical mirror, with axis horizontal and normal to the plane of reflection; the amount of the observed flattening accords well with that demanded by theory.

Saturn.—Dr. F. Terby, of Louvain, reported, on the evening of March 6, 1889, discovery of a

white spot on the rings of Saturn adjacent to the shadow of the ball and similar to the white spots sometimes seen upon Jupiter. On the 12th it was again seen with an eight-inch Grubb telescope, but it was invisible on the 13th, 20th, 22d, and 23d, and on April 2. Evidence as to the real existence of this spot is extremely contradictory. Several observers have confirmed Dr. Terby's discovery, but Mr. Common was unable to see the spot with his five-foot reflector, nor could it be seen with the great Lick telescope. Prof. Hall is inclined to believe that the phenomenon is an effect of contrast. The very fine division on the outer ring of Saturn, detected with the thirty-six-inch Lick refractor early in 1888, was again seen in 1889, at a distance of about one sixth of the breadth of ring A from its outer edge. A dark shading extended inward from the new division almost to the inner edge of the ring. Prof. Holden has also noted an extremely narrow, brighter polar cap, about five seconds wide, in a direction parallel to the equator and perpendicular to this, about the width of the Cassini division at the *ansæ*. Asaph Hall, Jr., has found from his observations of Titan a value for the mass of Saturn of $1 : 3,500.5$, the sun's mass being unity. This is in close agreement with Bessel's revised value, $1 : 3,502.5$, and Struve's, $1 : 3498$.

Uranus.—At the July meeting of the Royal Astronomical Society, Mr. Tayler described certain observations of the spectrum of Uranus, made with a direct-vision spectroscope attached to the five-foot reflector at Common's observatory, Ealing. Bright flutings were detected in the red, orange, and green, and also four dark bands in the orange, green, greenish-blue, and blue, indicating that the planet is to some extent self-luminous. No solar lines were seen. But Dr. William Huggins, by help of photography, has found evidence of their existence. With an exposure of two hours, on June 3, 1889, he obtained a spectrum in which all the principal solar lines were distinctly seen, but he was unable to distinguish any other lines, bright or dark.

Neptune.—Observations of the satellite of Neptune during the past three years have shown that the plane of its orbit undergoes considerable perturbations hitherto unexplained. Prof. Newcomb and M. F. Tisserand have, independently, suggested that this may be accounted for by supposing that Neptune is slightly flattened, and that the orbit of the satellite makes an angle with the equator.

Asteroids.—Following is a table of the asteroids added to the list since Oct. 25, 1888:

No.	Name.	Discoverer.	Discoverer's numbr.	Date of discovery.
280.	Philia.....	Palisa, at Vienna	67	1888 Oct. 29.
281.	Lucretia...	Palisa, at Vienna	68	Oct. 31.
282.	.....	Charlois, at Nice	4	1889 Jan. 28.
283.	.....	Charlois, at Nice	5	Feb. 8.
284.	.....	Charlois, at Nice	6	May 29.
285.	.....	Charlois, at Nice	7	Aug. 3.
286.	.....	Palisa, at Vienna	69	Aug. 3.
287.	Nephtys..	Peters, at Clinton	48	Aug. 25.

Number 277 has received the name Elvira, and 279 the name Thule. An asteroid of the twelfth magnitude, picked up by Palisa on Jan. 4, 1889, proved to be Siwa, 140.

Comets.—The origin of comets, always a fruitful field for speculation, has received more than usual attention of late. Dr. Th. Bredichin has expressed the opinion that periodic comets owe their origin to the segmentation of ordinary parabolic comets, having been thrown off from the latter by an eruption, such as we have probably witnessed in the great comet of 1882 and in Biela's comet. A valuable paper on the capture theory of comets by M. Tisserand will be found in the "Bulletin Astronomique" for June and July, 1889. In a recent paper by Dr. J. Holtschek it is claimed that the apparent systematic grouping of cometary perihelia in certain directions (270° and 90° of heliocentric longitude) has no connection with the general motion of the solar system, but is due to the position of the earth at the time that these discoveries are most readily made.

Among the most important of recent contributions to cometary literature is Dr. H. Kreutz's monograph on the great September comet 1882 II, the comet that was seen in full daylight, and was followed by astronomers until it actually disappeared against the sun's disk. The formidable obstacles to an accurate determination of the orbit, presented by the disintegration of the nucleus into several points of condensation, seems to have been most skillfully surmounted by the computer. The final value for the period is 772.2 years. Dr. Kreutz has also finished a computation of the orbit of comet 1880 I, but its publication is delayed until the completion of Dr. Weiss's determination of that of 1843 I, as these three comets seem to belong to the same cometary system, distinguished for short perihelion distances; and we, no doubt, now have a fourth member of the same family in the headless comet 1887 I.

William R. Brooks, of Geneva, N. Y., reported the discovery, on the morning of Jan. 15, 1889, of a faint comet in the constellation Sagittarius. This comet, to which the designation Comet *a*, 1889, was given, in order to distinguish it as the first comet discovered in the year was diligently searched for by several observers, especially by Barnard and Swift, who examined the region carefully from Jan. 19 to Feb. 13, but without success. As the three observations necessary for determining the orbit were not secured, this comet is not catalogued among the comets of the year. A comet announced by Swift on July 15, is also omitted, as it proved to be identical with the comet discovered by Brooks on Aug. 7, 1888 (1888 III). The comets of 1889 (up to the end of October), arranged in the order in which they passed perihelion, are then as follows:

Comet 1889 I or Comet *e* 1888, designated as Comet V in the record of last year, was discovered by Barnard, at Lick Observatory, with a 4-inch comet seeker on Sept. 2, 1888, or the morning of Sept. 3, and was also independently discovered by Brooks at Geneva on the following morning. It was a round, nebulous mass, 1' in diameter, with a central condensation of between the eleventh and twelfth magnitude and no tail. At the end of November and beginning of December, it was visible to the naked eye and about as bright as a star of the sixth magnitude. Perihelion was passed on Jan. 31, 1889, and by the end of February it disappeared in the sun's rays, reappearing, however, about the middle of April, and re-

maining visible for several months longer. Barnard remarked, on June 3 that there was an anomalous tail directly following the comet about, 1° in length and some 2' or 3' broad. There was no trace of a tail *preceding* or pointing away from the sun, the direction usually taken by these cometary appendages. The spectrum on Nov. 14, according to Dr. Ralph Copeland, instead of being composed of the usual feeble, separate bands, was continuous, brighter in the middle, and faded gradually at both ends; it resembled the spectrum of a close globular star-cluster or of a non-gaseous nebula, rather than that of a self luminous gas. Faint patches of light were made out in the positions usually occupied by the second and third cometary bands. Similar observations were made later, and on Dec. 8 all three bands were distinctly visible, but on each occasion the continuous spectrum formed the ground on which the brighter spectrum was superposed. Dr. Copeland says, "It seems probable that the comet shines mainly by reflected light, . . . to which the action of the sun on the cometary material is slowly adding the usual bright bands."

Comet 1889 II. On the evening of March 31, E. E. Barnard discovered, with the 12-inch equatorial of Lick Observatory, a very small and extremely slender comet, the head being not over $10''$ in diameter and the tail about $15'$ in length; the nucleus was stellar and of about the thirtieth magnitude.

Comet 1889 III. Mr. Barnard discovered, with the $6\frac{1}{2}$ -inch equatorial of Lick Observatory, another faint comet, at about 2 o'clock on the morning of June 24, in the constellation Andromeda. According to elements computed by W. W. Campbell, it had passed perihelion on June 20, and was receding from the earth as well as from the sun when discovered. The last observation seems to have been obtained at Lick Observatory on Aug. 6.

Comet 1889 IV. A tolerably bright comet was discovered in Centaurus by Davidson at the Melbourne Observatory on July 21. On the 25th it was easily visible to the naked eye, and in a small telescope showed a bushy tail. A photograph of this comet was secured on July 30 at Lick Observatory by Mr. Barnard. The time of exposure was one hour and thirty minutes, and the negative showed a wide, fan-shaped tail, with borders concave to its axis and pretty bright for $20'$ from the head and traceable to $53'$. Prof. Holden finds that the brightest part of the tail was $\frac{1}{1000}$ of the brightness of the brightest part of the solar corona on Jan. 1, 1889, and $\frac{1}{800000}$ that of the full moon.

Comet 1889 V. William R. Brooks, while sweeping the southwestern heavens with a $10\frac{1}{2}$ -inch equatorial on the morning of July 6, discovered a suspicious-looking nebulous object, the cometary character of which he was able to confirm by observations on the following morning. The position at the time of discovery was right ascension $23^h 45^m$, declination $-9^\circ 10'$. It was then faint, with a short, wide tail. The comet attracted no special attention on the part of astronomers till Aug. 1, when Barnard discovered that it had apparently given birth to two small nebulous bodies. The next morning showed that both objects, which he designated as B and C, were moving with the parent comet through space. Mr. Barnard says: "On Aug. 3 they were

examined with the 36-inch equatorial, which showed the whole group very beautifully. Each of the companions had a very small nucleus and condensation in a very small head and a short, faint tail, presenting a perfect miniature of the larger one, which was pretty bright and well developed, with small nucleus and slightly fan-shaped tail $\frac{1}{4}^{\circ}$ long. There was then absolutely no nebulous connection with the larger, nor has there been at any time since, either in the 12-inch or in the 36-inch telescopes. Nothing whatever has been seen here of the nebulous envelope spoken of by the Vienna observers as apparently inclosing the whole group (A. N., 2,914). I have from the first carefully looked for a nebulous connection. Under unfavorable circumstances the tails of B and C might be imagined to be a connecting nebosity, but the tail of B falls short of A, and that of C does not nearly reach B. Each comet is in appearance absolutely independent of the other. The tails of all three have lain in the line of the nucleus of A, and therefore have not sensibly deviated from the position-angle 241° .

"On Aug. 4 two other companions were detected with the great telescope, one of which was measured, the other being too elusive to set the wires on. I have numbered these four companions B, C, D, E, in the order of increasing right ascension, A being the larger comet, D and E being the two last discovered. D has been seen several times since the moon withdrew, but has always been too faint to observe; it has not sensibly changed its position. E has only been seen once; its position-angle referred to C would be the same as that of D, and its distance twice as great. Four or five other nebulous bodies observed near the comet Aug. 2 have not since been seen, and were probably nebulous.

"The results of the observations of the two brighter companions are extremely interesting. Measures of B have been made on eighteen, and of C on seventeen nights. These two have almost exactly the same position-angles, which have been sensibly constant; their distances from the main body have, however, been increasing. At the last observations, B seems to be stationary, the distance from A remaining constant, while C continues to recede."

According to elements published by Dr. Knopf, the main comet passed its perihelion on Sept. 27 at a distance from the sun of 1.96 in terms of the earth's mean distance, and its period of revolution is 7.286 years.

Such resolution into several points of extreme condensation was well exemplified in the case of the great comet of 1882, but there the separate condensations were contiguous, and all were enveloped in one common nebosity. But in the present case the two components were far apart, and each was surrounded by its own nebosity, a phenomenon of which we also have a precedent in Biela's comet. This comet, which was discovered in 1772, continued single till November, 1845, and then, by the end of December, separated into two distinct nebulosities. In 1852 the two companions were seen, but the distance had increased eightfold, and at the next return they had apparently been dissipated in a shower of meteors; diligent search has failed to reveal the least trace of the comet since.

Star-Catalogues.—Dr. Auwers published in 1880 a provisional list of 303 reference stars for the southern zones of the *Astronomische Gesellschaft* between -2° and -23° , and although the material accumulated since that time is not sufficient to give the most accurate places, he has prepared a catalogue of positions which will probably require but slight correction. The places have been reduced to 1885 by carefully determined proper motions.

A collection of all available meridian observations of stars that will be within 1° of the north pole in 1900 has been prepared by Miss Anna Winlock, and published as No. 9, of vol. xviii, of the "*Harvard Observatory Annals*." Prof. Safford has published a catalogue of right ascensions of 261 stars, mostly within 10° of the pole, observed with the 4½-inch Repsold meridian circle of Field Memorial Observatory at Williamstown from 1882 to 1887.

The third volume of Auwers's new reduction of Bradley, which has been five years in going through the press, was finally published in 1888. This volume contains, in addition to the catalogue proper, tables giving the quantities in the reduction to the apparent place that depend upon the star's position, and a comparison of Bradley's positions, reduced to 1865, with Berlin and Greenwich observations of about the same date. The catalogue contains 3,268 stars.

Star Charts.—A series of charts embracing all the stars visible to the naked eye—that is, down to about the six-and-a-half magnitude—has been published by Mr. Cottam, and has been highly complimented. There are thirty-six sheets, the scale being one third of an inch to one degree of a great circle. Another most useful set of star maps is Klein's new star atlas, which has appeared in both English and German editions. In the latter there are eighteen maps, containing about the same number of stars as Mr. Cottam's, and giving also all the nebulae and clusters visible in telescopes of moderate power—a great help to comet hunters.

Stellar Spectra.—The researches that constitute the Henry Draper Memorial, at Harvard Observatory, have consisted for the past three years in the photographic study of stellar spectra; and, while this will continue to be the principal subject for investigation, Mrs. Draper has decided to extend the field of work undertaken so as to include the study of other physical properties of the stars by photography. The first research is now rapidly approaching completion. The catalogue of spectra of bright stars as far south as -25° declination is practically ready for the printer; the photographs for the catalogue of the spectra of faint stars are nearly finished, and the detailed study of the spectra of the brighter stars by means of the 11-inch refractor, with one, two, or four large prisms over its object-glass, will probably be completed within the year. The 8-inch Bache telescope, with which the observations for the first catalogue referred to have been made, remained in California after the New Year's eclipse until Feb. 2, 1889, and was then sent to Peru to continue work upon the spectra of bright stars from -25° to the south pole; the resulting photographs will be sent to Cambridge for reduction. The research on the spectra of faint stars will also be continued to

the south pole, and it is expected that this work in the southern hemisphere will be completed in two years. The Bache telescope will be replaced at Cambridge by an instrument of similar construction provided by Mrs. Draper.

Photography has been applied very successfully, by Dr. Vogel, of Potsdam, to the determination of the velocities of stars in the direction of the line of sight from the observer to the star under observation. The displacement of the lines of the spectrum due to this motion of the star to or from the observer, or of the observer to or from the star, is extremely minute, and the accordance of the measurements made by Dr. Vogel is quite remarkable. His mean results for the motion referred to the sun—that is, after the observed motion has been corrected for the known motion of the earth in its orbit—are as follow:

- Capella receding from the sun 16 miles a second.
- Aldebaran receding from the sun 30 miles a second.
- Polaris approaching the sun 16 miles a second.
- Algol approaching the sun 7 miles a second.
- Procyon approaching the sun 7 miles a second.

Stellar Parallax.—Prof. Pritchard, of Oxford University Observatory, has continued his investigations of stellar parallax by means of photography, his aim being to examine all stars of the second magnitude suitably situated for observation at Oxford, in the hope of contributing somewhat to our knowledge of what Herschel called the “construction of the heavens.” With reference to the differences between the results obtained by different observers, Prof. Pritchard says: “Guided by the suggestions of recent experience, I now think that such differences of ‘parallax’ might very reasonably have been anticipated, and may probably be accepted as matters of fact, without in any degree impugning the accuracy of the observations. For in process of this work on parallax, and also from the general history of similar inquiries, it has been made abundantly evident that no necessary connection exists between the brightness of a star and its position in space or distance from the sun. Nevertheless, it is this very difference of brightness mainly which guides us in the selection of comparison stars. The ‘parallax’ is, in fact, and is becoming more and more generally recognized to be, a differential quantity, fainter stars being in very many instances much nearer to us than others possessing incomparably greater brightness. In passing, I may here instance α Lyrae as compared with 61 Cygni; β Centauri as compared with ϵ Indi. In fact, the position in space of the faint comparison stars in relation to that of the star whose parallax is sought is, if not a matter of accident, at all events wholly unknown until the observations and computations are complete.”

Prof. Pritchard’s final results for stellar parallax, as published in the third volume of the “Oxford Observations,” are as follows:

STAR.	Magnitude.	Proper motion.	Parallax.
61 ¹ Cygni	4.98	5.16''	0.44''
61 ² Cygni	4.98	5.16	0.44
μ Cassiopeiæ	5.40	3.75	0.04
Polaris	2.05	0.05	0.05
α Cassiopeiæ	2.41	0.05	0.04
β Cassiopeiæ	2.32	0.55	0.16
γ Cassiopeiæ	2.19	0.02	0.01
α Cephei	2.57	0.16	0.06

Dr. J. A. C. Oudemans has collected, in the “Astronomische Nachrichten,” Nos. 2,915 and 2,916, the scattered results for stellar parallax obtained in the past sixty years, in a very convenient form, with notes on authorities. The following table forms a summary of his paper:

NO. OF STARS.	Proper motion.	Annual parallax.	Distance in light years.
9	4.93''	0.32''	10
9	2.88	0.20	16
9	1.00	0.20	16
9	0.38	0.18	18
10	0.05	0.16	20

From which Dr. Oudemans concludes that “stars with proper motions greater than .05” have probably an annual parallax of .10” to .50”.

Variable Stars.—Several important papers by S. C. Chandler have been published in the “Astronomical Journal.” In one of these, Mr. Chandler describes an ingenious method of estimating star colors, which he has used with good effect. It consists in estimating the relative change of brightness effected in two stars by the interposition, first of a blue and then of a red shade-glass. If a red and a white star appear of the same brightness when viewed directly, the red star will seem the fainter when the blue glass is interposed, but the brighter with the red glass. These differences of brightness can be precisely estimated by Argelander’s method, and they thus afford definite measures of the differences in color of the two stars on an arbitrary scale depending upon the glasses employed. The effect of brightness upon the scale estimates seem to be imperceptible, at least between the second and ninth magnitudes. An important result of Mr. Chandler’s investigations is the intimate connection shown between the length of period and the depth of color of the star; the very short period variables are nearly white; those of longer period somewhat redder, the tint growing deeper the longer the period. The possessors of large refractors are strongly urged to devote a portion of their time to the observation of the minima of variables that become too faint for ordinary telescopes, our knowledge of such variables being extremely deficient. Argelander’s method of observation is recommended.

Mr. Chandler has collected the observations of U Ophiuchi (of all variables, the one with shortest period and most rapid fluctuations of light), and he finds a curious but well-marked retardation in the increase of brilliancy some half-hour or so after minimum is passed. A similar irregularity has been noticed in the light-curve of S Cancri and occasionally in that of Algol. Further observations of the Algol variable γ Cygni, the period of which has hitherto been uncertain, have fixed this element at 1^d 11^h 56^m 48^s; the period of R Canis Majoris, an interesting variable detected by Mr. E. F. Sawyer, is undoubtedly very close to 1^d 3^h 15^m 56^s.

An “Index to Observations of Variable Stars” forms No. 8 of vol. xviii of the “Annals of the Harvard Observatory.” A large number of unpublished observations are referred to, particularly three extensive series of observations by Argelander, Heis, and Schmidt.

Extension of the Law of Gravitation to Stellar Systems.—Prof. Hall, in a discussion of this question in the "Astronomical Journal," after a review of the various speculations upon the subject, says: "The weakness of the proof that the Newtonian law governs the motions of double stars arises from two sources. In the first place, the errors of observation have a large ratio to the quantities measured. This condition makes it difficult to compute the orbits with much accuracy, or we may satisfy the observations with very different elements. . . . The insufficiency in the data can only be removed by further observation. Since there is no theoretical difficulty in the way, the continuation of the observations of double stars and the improvement of methods of observation will, in time, give the means for the accurate determination of their apparent orbits. The theoretical difficulty in proving the law of Newton for double stars can not be overcome, but we can increase the probability of the existence of this law by determining more orbits and those that are very differently situated. If the law proves satisfactory in all cases, we shall have a probability of its universality increasing with the progress of astronomy." But, although this probability may be very great, it can not constitute a proof offering the character of experimental certainty which clothes the law of Newton itself in our planetary system. A serious difficulty is encountered in the enormous velocities with which quite a number of stars appear to be moving through space, "runaway" Groombridge—1830, μ Cassiopeiae, β Hydri, α Boötis, and others. Some of these velocities are comparable to that of a comet in close proximity to the sun, but in most cases there is no visible object near the one in motion to which we can ascribe an attractive force, acting according to the Newtonian law, which would produce the velocity observed, unless we assume enormous masses.

An interesting article on this subject is contributed by M. Tisserand to the "Bulletin Astronomique" for January, 1887.

Double and Multiple Stars.—The star η Ophiuchi of the second or third magnitude has been divided into two nearly equal components by Burnham with the 36-inch Lick refractor, and he is of the opinion that it will undoubtedly prove to be a binary of short period; the distance is about 0.35". He has also found companions for Aldebaran and γ Cassiopeiae, and a very minute companion for θ Cygni distant about 3.6".

In measuring the double star ϵ Hydre at Pulkowa, in 1860, and again in 1864, Otto Struve suspected an elongation in the principal star. In 1877-'78, Burnham carefully examined the pair, but always found the larger star round. In April, 1888, J. V. Schiaparelli, with the 18-inch refractor at Milan, found it plainly elongated, and Burnham has been able to separate and measure this faint companion with the 36-inch Lick glass, using a magnifying power of 3,300. It seems very probable, therefore, that this will prove to be a physical system, and perhaps one in rapid motion.

Herr H. Seeliger has published a paper on the peculiar stellar system ζ Cancri, in which he finds that more recent observations and further study confirm his former result and the still earlier

conclusions of Otto Struve. ζ Cancri consists of a star A, 5.0 magnitude, a close visible companion B, 5.7 magnitude, and a more distant companion C, 5.5 magnitude. Treating A, B, and C as three bodies, Herr Seeliger by a strict analysis of their motions, shows that to make theory conform to observation, C must revolve about a point S_2 which can be no other than the center of gravity of C and a dark companion D while their common center of gravity s_2 revolves about the center of gravity of the two stars A and B.

The Great Nebula in Orion.—In order to test the efficacy of photography in the discovery of new nebulae, Prof. Pickering has compared the number of nebulae shown in a series of photographs of the regions about the great nebula in Orion, with the number in the same region given by Dreyer's catalogue. Fourteen of the objects photographed are contained in Dreyer's catalogue; four in the catalogue are not photographed; twelve that are photographed are not in the catalogue. Prof. Pickering concludes that in carrying out the same proportion we might expect to discover four or five thousand such objects by photographing the whole sky; but, he adds, "there is one consideration that may seriously modify this conclusion. The successive improvements in photography have continually increased the limits of the nebula in Orion. These plates show that it not only includes the sword-handle ϵ , ι , and θ , but a long nebulosity extends south from ζ , others surround this star, while others, both north and south, indicate that perhaps the next increase in sensitiveness of our plates will join them all in a vast nebula many degrees in length."

In the March number of the "Monthly Notices," Isaac Roberts gives a brief paper on what he terms photographic analyses of the great nebula of Orion, and the nebulae M 42, M 43, and h 1180 in Orion. This was done by exposing negatives between five seconds and three hours, twenty-five minutes, and studying the gradations of the nebulosity obtained in order "to compare the relative actinic power of the light in different parts of the nebula." An exposure of five seconds showed the four stars of the trapezium; one of thirty seconds increased the diameter and density of these stars, and a third exposure of one minute intensified the same effect, and showed the beginning of nebulosity around the star θ . Photographs obtained under longer exposures, upon comparison with the drawings of Lord Rosse and Bond, seem to show that changes of the relative position of certain stars have taken place since 1866; while still longer exposures have brought out evidence that the three objects, M 42, M 43, and h 1180, all belong to one gigantic nebula.

When the 36-inch refractor of Lick Observatory was mounted, one of the first objects examined by Mr. Alvan G. Clark was the trapezium of Orion; and he detected at once an exceedingly faint point of light within the trapezium which Mr. Burnham has seen and measured frequently since; it is probably fainter than the sixteenth magnitude. In October, 1888, Barnard saw that the star was really double, forming the severest possible test for the defining and illuminating power of the great telescope. Barnard

has detected a second star within the trapezium, and also another of about the same magnitude as the Clark star just preceding the trapezium.

Dr. William Huggins has photographed new lines within the spectrum of the nebula, and he has also noticed that at least three groups of lines in the spectra of two of the stars of the trapezium extend into the adjoining nebular matter, and so show that these stars are not merely optically, but truly and physically connected with the nebula. These observations seem to point to the conclusion that the nebula is now in a state of gas, though we have no knowledge of the anterior conditions which have brought it into this condition.

The Great Nebula in Andromeda.—The "Observatory" for February contains a reproduction of a remarkable photograph of the great nebula in Andromeda, taken by Mr. Roberts with a 20-inch silver-on-glass reflector. A regular, connected and highly suggestive form is given to the nebula, which has not been brought out by any drawings hitherto made.

New Astronomical Societies.—The friendly relations which were established between the professional astronomers at Mount Hamilton and amateur photographers and astronomers of the Pacific coast on the occasion of the total solar eclipse on Jan. 1, 1889, resulted in the formation of the Astronomical Society of the Pacific, of which Prof. Holden was elected president, and Messrs. Schaeberle and Burckhalter, secretaries. The new society is designed to be popular in the best sense of the term, and any person who takes a genuine interest in astronomy is invited to join its membership, whether he has made special studies in this direction or not. The "Publications" are printed in octavo form at irregular intervals. They contain papers read before the society, either in full or in abstract, the minutes of the meetings, and also notes from the Lick Observatory, which are brief and popular accounts of the current work of that establishment, prepared by members of the observatory staff. A fund has been established known as the "Donahoe Fund for the maintenance of the Comet Medal of the Astronomical

lar lectures are given on scientific subjects, and a very well-written popular journal "Himmel und Erde," is published, especial attention being paid to astronomy. Another new society, the "Société Astronomique de France," founded Jan. 28, 1887, by M. Flammarion, has met with well-deserved success. Reports are published in the "Observatory" and in "L'Astronomie," and the proceedings appear in an annual bulletin.

Astronomical Prizes.—The Lalande prize of the Paris Academy has been awarded to M. Bossert for his useful work as vice-director of the computing division of the Paris Observatory; the Valz prize, to Prof. E. C. Pickering for his work in stellar photometry; and the Janssen prize, to Dr. Huggins. The Rumford medal of the Royal Society was awarded, Nov. 30, 1888, to Tacchini, for important and long-continued investigations which have largely advanced our knowledge of the physics of the sun.

New Treatises on Astronomy.—The first volume of a treatise on celestial mechanics by M. Tisserand, of Paris, has appeared. It contains the general theory of perturbations, and is to be followed by another volume on the figures and rotation of celestial bodies and a third on the lunar theory, theory of Jupiter's satellites, Hansen's method for the calculation of perturbations and other methods of recent date. Another work which will be found in many respects useful as a text-book is "Die mathematischen Theorien der Planeten-Bewegungen," by Dr. Dziobek. A fourth edition of Chambers's "Astronomy" is being published in three volumes; the first volume only has been issued, and Proctor's "Old and New Astronomy" is to be finished under the editorship of A. C. Ranyard.

AUSTRALASIA, a division of the globe embracing the continent of Australia and the colonial possessions of England in the Pacific Ocean. The area and population of the British Australasian colonies, with their public debts and their budgets for the financial year 1887, which ended on June 30 in Victoria, Queensland, and South Australia, on March 31 in New Zealand and Fiji, and on Dec. 31 in the other colonies, are given in the following table:

COLONIES.	Square miles.	Population.	Revenue.	Expenditure.	Debt.
New South Wales.....	310,700	1,042,919	£8,582,811	£9,098,460	£40,995,850
Victoria.....	87,884	1,036,119	6,733,826	6,561,251	33,119,164
Queensland.....	668,497	366,940	3,177,518	3,368,888	25,820,850
South Australia.....	908,425	312,421	1,869,942	2,165,245	19,168,500
Western Australia.....	975,920	42,488	377,903	456,897	1,290,770
Tasmania.....	26,375	142,478	594,976	661,759	4,109,370
New Zealand.....	104,027	603,361	3,521,490	4,082,364	36,758,426
Fiji.....	7,740	124,658	64,916	73,151	255,389

Society of the Pacific," the principal conditions of the gift, a medal of bronze, being the discovery of a new comet or the first precise determination of position of a periodic comet at any one of its expected returns. The discoverer is to make his discovery known in the usual way and also to communicate it immediately to the director of Lick Observatory. No application for the bestowal of the medal is required.

A new society for encouraging the study of nature, the "Gesellschaft Urania," has been established at Berlin under the presidency of Prof. Förster, of the Berlin Observatory. Popu-

lative of British New Guinea and various small islands in the Pacific, the total area of the Australasian colonies and dependencies of Great Britain is about 3,135,000 square miles, and the population exceeds 3,800,000.

Federation.—The idea of imperial federation, which is popular in England, finds little or no acceptance in Australia, because the advantages would be almost entirely on the side of the mother-country, while the sacrifices would be borne by the colonies. Customs furnish nearly one third of the colonial revenues, and are the main dependence for the permanent expenses of

Government. In New South Wales, where the principle of tariff for revenue only has prevailed, the customs receipts in 1886-'87 amounted to £2,011,947. In Victoria, which has nourished a large industrial development by protective duties, they were £2,353,050 in 1887-'88. New Zealand collected £1,251,651 of import duties, and Queensland £1,178,334. The bulk of these duties is now paid on English manufactures. The Protectionists and Fair Traders in Great Britain who cherish the idea of imperial federation propose to tax imports from foreign countries which compete with colonial products. This would scarcely benefit the wool-growers of the colonies, would not help the gold-mining interests, and would encourage wheat-producing only by making bread dear for the English poor. British industry, in return for the sentimental sacrifice of free-trade traditions, would usurp the market now occupied by the growing industries of Victoria and other colonies, in all of which high wages and the eight-hour working day are the rule. The only motive that the colonists could have for thus deranging their fiscal system and crushing their manufacturing interests is that of loyalty to the Crown. Yet, while many are attached to the British connection as it now exists, a large part of the community nurses the hope of complete political independence, and this sentiment is spreading because the imperial connection subjects the colonies to the danger of attack in case of war between England and another naval power. The idea of independence is usually coupled with that of colonial federation. There is a distinct tendency toward a union, popularly conceived after the prototype of the United States; but the movement is attended with much friction, owing to conflicting interests and political jealousy between the various colonies. The Federal Council, which meets at Hobart in January every year to discuss intercolonial questions admitting of common action, has not accomplished much, and till now New South Wales and New Zealand have taken no steps to join even this tentative and shadowy union. At the first meeting of the Council, on Jan. 25, 1886, measures were considered for giving operation to warrants and judgments of the courts throughout the colonies represented, and an agreement was entered into to act with the Imperial Government in fortifying King George's Sound and Torres Straits. The Council met for the second time in January, 1888, when a bill for regulating the *bêche-de-mer* fisheries of northern Queensland was the principal measure passed. At the third session, opening on Jan. 29, 1889, South Australia was represented for the first time. The Council adopted an address to the Queen, asking to be furnished with copies of all treaties relating to affairs in the Pacific, and, in view of the anxiety concerning the Samoan question, urging the importance of maintaining existing treaties. A bill was passed dealing with the pearl fisheries of Western Australia, while one relating to the status of joint-stock companies was rejected on the ground that it would affect colonies that had not joined the Federation. The Council also adopted a scheme increasing the number of its members on the basis of population, thus giving to the principal colonies proportionate authority in the deliberations. The question of the

exclusion of Chinese immigrants, on which all the colonies were united, and which they solved by adopting virtually prohibitive measures antagonistic to the spirit, if not to the letter of the treaties with China, was made the subject of diplomatic negotiations between the British and Chinese Governments, which are not yet concluded.

The Chinese, the New Guinea, the New Hebrides, and the French recidivist questions have developed a lively sense of Australian interests as opposed or impeded by the imperial or European interests of Great Britain. Yet, notwithstanding the bond of common feeling that unites all Australians when their deeper political interests are touched, the colonies are rather disposed to differ than to act together in practical matters as they come up. New South Wales has clung to the free-trade system, partly because the Victorians adopted protective tariffs. Even railroads are built on rival systems, South Australia and Victoria having the broad English gauge of 5½ feet, while in New South Wales the tracks are 4½ feet wide, and in Queensland 3½ feet, so that goods have to be reloaded at the frontiers. When the colonies had agreed to pay £15,000 a year for the administration of New Guinea, each contributing according to its population, South Australia subsequently withdrew from the arrangement. They are now considering the matter of erecting wire fences along the boundary lines, so that each colony can combat the rabbit-pest in its own way. Yet, in spite of small jealousies, the colonies, of the Australian continent at least, feel, and are ready to act, as one nation on great political questions.

Colonial Governors.—The protest of the Queensland ministry against the appointment of Sir Henry Blake, formerly a resident magistrate in Ireland, as Governor of the colony was followed by discussions in the colonial parliaments and a correspondence with the home Government on the subject of the appointment of colonial governors. The Secretary of State for the Colonies, Lord Knutsford, in his reply to the request of the Queensland Government to be consulted in regard to the appointment of the new Governor, laid down the principle that the officer charged with the duty of conducting the foreign relations of the Crown and advising the Crown on imperial, as distinct from colonial questions must owe his appointment and be responsible to the Crown alone, and that the ministers of the colony concerned could not share the responsibility of the Crown or have a veto on the selection. A similar application was made by the Government of South Australia with regard to the appointment of a new governor of that colony, to which an answer in practically the same terms as that given to the Government of Queensland was returned by the Secretary of State. On Nov. 19, 1888, Sir Graham Berry, agent-general for Victoria, communicated the contents of a telegram describing a discussion which took place in the Legislative Assembly, which showed that Victoria had no desire to appoint or nominate its Governor. On Nov. 22, 1888, an address to the Queen from the Legislative Assembly of New South Wales was received, submitting that it was desirable and reasonable, and in accord with the privileges constitutionally conferred on

Australian subjects, that in future the Government of the colony should be informed of any intended appointment to the governorship before the appointment is finally made, and expressing the opinion that the field of selection should be limited to persons who had been members of the British Parliament or had held high office in the Imperial Government. The difficulty with regard to the particular appointment of Sir Henry Blake was overcome by his resignation of the post on Nov. 26, 1888. The correspondence was closed by Lord Knutsford's dispatch of July 8, 1889, to the governors of the Australian colonies and of New Zealand expressing the opinion that the expediency of making any constitutional change in the mode of appointing the governor of an Australian colony had not been established, and pointing out that men in active political life or holding prominent offices in England would not be likely to accept service abroad, that none of the successful Australian governors had been selected from those classes, and that the Imperial Government could not invite a person selected for a governorship to allow his name to be submitted for approval to colonial ministers to whom he might be entirely unknown, however well and favorably known in England.

New South Wales.—The earliest constituted of the Australasian colonies has the most democratic electoral system, suffrage being universal. It retains the nominated Legislative Council, although Victoria obtained an elective upper house after a constitutional struggle lasting from 1862 till 1881; yet the legislative authority has gradually passed into the hands of the Assembly of one hundred and twenty-four members, elected by seventy-two districts. The present Governor is Lord Carrington, who assumed office on Dec. 12, 1885.

New South Wales has at last overtaken Victoria in population, according to the estimate of 1,042,919 for the end of 1887. The net immigration in 1887 was 23,516. The number of births registered during that year was 37,236; the number of deaths, 13,448; the number of marriages, 7,590. The number of blacks in 1885 was 5,362, showing a decrease of 327 since the previous year; the number of half-breeds was 2,622, an increase of 220. The estimated population of Sydney, the capital, on June 30, 1888, was 357,856.

The total value of the imports in 1887 was £18,806,236; of exports, £18,496,917. The exports of domestic products amounted to £15,472,361. One half of both the import and export trade is with Great Britain, and the rest is chiefly with other colonies of Australasia, the commerce with foreign countries being only one tenth of the total. The export of wool in 1887 was valued at £9,200,071. The lands leased for pastoral purposes in 1886 were 211,174 miles in extent. The pastoral lands in 1888, exclusive of Crown leaseholds, had a total area of 36,817,491 acres. The area under cultivation was 1,042,394 acres. The coal product in 1887 was 2,922,497 tons, valued at £1,346,440; the product of gold, 110,286 ounces, valued at £394,579; of copper, 4,763 tons; of tin, 4,961 tons; the value of silver-lead ore, £541,952. The number of persons employed in mining operations in 1887 was 18,399, while 44,360 were employed in manufacturing

operations. The railroads in 1887 had a total length of 2,036 miles, built at a cost of £26,554,357. There were 21,444 miles of telegraph wires. The mails forwarded 44,845,900 letters, 34,181,600 papers, and 5,530,700 packets in 1887.

The principal source of public revenue has been the sale and rent of public lands, which produced more than one half the total receipts till 1884, when the sales were partly stopped. The only direct tax is the stamp duty. Of £8,582,811 raised in 1887, £2,510,335 were derived from railways; £2,378,791 from land, the sales amounting to £1,221,776; and £2,664,548 from customs and other taxes. Of the expenditure, £9,098,460 in amount, £1,698,716 were required for railways; £633,813 for the postal and telegraph service; £1,172,993 for other public works; £1,693,926 for interest and payment of debt; £31,534 for promoting immigration; and £3,149,056 for other purposes. The revenue for 1888 was estimated at £9,158,072, and the expenditure was not expected to exceed £8,588,352. The actual receipts in that year were £8,711,000, and in 1888-'89 the revenue amounted to £8,963,000. The public debt at the end of 1888 reached the sum of £43,996,000. The expenditure on railroads up to Dec. 31, 1887, had been about £30,000,000; on irrigation and sewerage works, £3,500,000; on telegraphs, £700,000; on harbor and river improvements, £1,650,000; on public buildings £1,600,000. A new loan was raised in 1889, but on less favorable terms than the previous ones, although there are better safeguards against the authorization of public works for political purposes than formerly, since every railroad project must be examined by the railway commissioners, and every public improvement estimated to cost more than £20,000 is subjected to the scrutiny of a joint committee of both houses.

At the beginning of 1889 the Free-Trade and Protectionist parties were almost equally balanced in the Assembly. On Jan. 10 the ministry of Sir Henry Parkes, although having a normal majority of a few votes, resigned in consequence of a motion condemning the appointment of a certain railway official. A new ministry was constituted by the Opposition on Jan. 15, of the following composition: Colonial Secretary, G. R. Dibbs; Colonial Treasurer, James P. Garvan; Secretary for Land, William J. Lyne; Secretary for Public Works, James Fletcher; Minister of Public Instruction, F. B. Sutton; Minister of Justice, Thomas M. Slattery; Vice-President of the Executive Council, John Lackey; Attorney-General, Edmund Barton; Postmaster-General, Henry Clarke; Secretary for Mines, John M. Chanter. On taking their seats on Jan. 17, the new ministry were defeated on a vote of confidence, by 41 votes to 38. Deeming that the Protectionists were now stronger in the constituencies than the party that had for two years carried on the Government, Mr. Dibbs advised the dissolution of Parliament, and appointed new elections for Feb. 2. In these the Free Traders were again victorious, although the ministry claimed a majority in the total popular vote of 9,000 in their favor. The new Parliament was opened on Feb. 28. In his financial statement the Treasurer asserted that the Liberals had swelled the deficit to £4,000,000, but Sir Henry Parkes had no difficulty in showing that there was

no deficit beside that entailed by the former Conservative Government. On March 6 his amendment to the free-trade address of the ministry was carried by 68 votes against 64. The ministers resigned the same day, and Sir Henry Parkes formed a Cabinet which was substantially the same as the one that was in office in 1888, except that Mr. McMillan became Treasurer and Mr. Brunker Minister of Lands. A motion of the Opposition to abolish the duties on kerosene, bacon, butter, and cheese, which was intended to embarrass the Government, was accepted by the Premier and carried by the Assembly. In response to a popular demand for the payment of members, which the Opposition adopted as part of their programme, the Government offered a bill, or rather the only member of the Cabinet in favor of the principle was allowed to bring one in, which passed the Assembly, as had three previous ones on the same subject, only to be subsequently rejected by the Legislative Council. In the last bill the members even voted to pay themselves salaries. This provision was stricken out by the Council at last agreeing to a tentative measure that should apply to the two next succeeding Parliaments only. In this form it was unacceptable, and was withdrawn by the Government. Parliament authorized the issue of treasury bills at 4 per cent. to cover the deficit of 1886 and previous years, amounting to £2,600,000. The principal act of the session was the land bill. The land bill of 1884 had scarcely been passed, after keeping Parliament at work for thirteen months, when the squatter and selector classes each began to agitate for fresh changes. The most important section in the new bill is one in favor of the squatters, granting them compensation for improvements in the form of a five years' additional lease. The squatters, many of whose leases are expiring, were backed by the banks in pressing for a money compensation for unexhausted improvements, to be paid by the incoming tenant or selector, and the Minister of Lands submitted a clause to that effect, which was changed however at the instance of the Radicals, who objected that this would enable the wealthy squatters to retain the land because the agricultural settlers could not pay for the improvements that would be made on the sheep-runs.

Victoria.—Having a cooler climate, Victoria has achieved a more rapid and varied development than New South Wales. The capital and enterprise of the Victorians have brought their own colony to a higher industrial and agricultural stage than the others, and even go outside to seek new fields in land speculations and mining and manufacturing undertakings in Queensland, New South Wales, and elsewhere. Queensland and Tasmania commercially are but provinces of Victoria. Tasmania, in which nearly all the tillable soil has been taken up, where the people are emigrating to Victoria, and no new settlers arrive to take their places, and which suffers consequently from commercial depression and disordered finances, is willing to be annexed to Victoria. The "pushing colony" which has won the primacy, may, however, at no distant period, when its limited area is fully occupied, again fall behind New South Wales with its vast extent of territory and undeveloped natural resources. Of the total area of Victoria 22,478,440 acres have

been alienated, leaving only 8,400,000 acres suitable for agriculture and 7,000,000 acres of pastoral land yet to be occupied.

Sir Henry Brougham Loch, who has held the office of Governor since July 15, 1884, resigned in 1889, and was succeeded by the Earl of Hoptoun, who was appointed on July 23. The composition of the ministry is as follows: Premier, Treasurer, Minister of Mines, and Minister of Railways, Duncan Gillies; Chief Secretary and Commissioner of Water Supply, Alfred Deakin; Attorney-General, H. J. Wrixon; Commissioner of Public Works, J. Nimmo; Minister of Justice, Henry Cuthbert; Commissioner of Trade and Customs, W. F. Walker; Commissioner of Crown Lands and Survey, J. L. Dow; Minister of Public Instruction, Charles H. Pearson; Minister of Defense, Sir James Lorimer; Postmaster-General, F. T. Derham; without portfolio, James Bell.

In 1881, when the last census was taken, 499,199 persons, or 58 per cent. of the population, were natives of the colony, 39,861 of other parts of Australia, 147,453 of England and Wales, 86,733 of Ireland, and 48,153 of Scotland. There were 108,919 persons engaged in agriculture, 13,731 in pastoral pursuits, 23,559 in commerce, 36,066 in entertaining or clothing, 46,883 in mechanical trades, 24,723 in domestic service, and 9,901 in public service. The population of Melbourne in 1888 was 410,000, being nearly 40 per cent. of the total population of the colony. The number of immigrants by sea in 1887 was 90,147, while 68,121 persons departed. The births in that year numbered 33,043; deaths, 16,005; marriages, 7,768.

The total value of imports in 1887 was £19,022,151; of exports, £11,351,145. The exports of gold, including specie, were £1,254,720; of wool, £5,073,491, including re-exports, the produce of other colonies, of the value of £2,778,927; of bread-stuffs, £868,030. Victoria is the only colony, except South Australia and New Zealand, producing wheat beyond its needs. The number of manufactories in March, 1888, was 2,871, employing 50,582 persons. The railroad mileage at the end of June, 1888, was 2,018, besides 493 miles in process of construction. There were 4,115 miles of telegraph lines, with 10,175 miles of wire, at the close of 1887. There were 2,176,915 dispatches during the year. The post-office forwarded 41,289,972 letters, 7,670,615 packages, and 18,869,055 newspapers.

The revenue for 1887-'88 amounted to £7,607,754, of which customs and other taxes yielded £3,040,038; railways, £2,741,488; posts and telegraphs, £539,780; Crown lands, £656,219; and other sources, £630,229. The total expenditures were £7,345,650, of which the interest and expenses of the debt absorbed £1,433,526, operating expenses of railways £1,570,139, other public works 1,024,049, public instruction and science £704,454, posts and telegraphs £524,367, and other services £2,089,115. The revenue for 1888-'89 was estimated at £7,792,624, and expenditure at £8,532,553. The actual receipts were £8,674,000, producing a surplus of £1,607,000. The railroad traffic rates have been lowered, the tax on tea reduced to 1*d.*, and the duties on coffee, cocoa, and kerosene abolished. Reductions were also made on dress goods. The farmers of Victoria have already obtained pro-

teective duties on produce brought into the colony across the land frontiers. Recently they have agitated for an advance of those duties to 25 per cent. ad valorem. In the budget for 1889 the import duty on oats and barley is increased from 2s. to 3s. per cental. No increase was made in the stock tax, because it is opposed to the federal spirit. Victoria had a debt on June 30, 1888, of £34,627,382, of which sum £26,425,706 was borrowed for railroad construction, £5,345,150 for waterworks, £1,105,557 for public-school buildings, and £1,750,969 for other public-works. A new loan of £3,000,000 was raised in Jan., 1889, at $3\frac{1}{4}$ per cent. The capital cost of the railroads to June 30, 1889, was £30,120,000, of which £28,275,000 had been raised by loans.

Victoria has enjoyed for three years a period of unexampled growth and prosperity. A centennial exhibition commemorative of the first colonization of Australia was held in Melbourne in the winter of 1888-'89. In addition to its commercial results it had the effect of arousing a wider popular interest in art and of giving an impetus to technical schools. The Government is arranging a complete scheme of technical and agricultural education. Measures are being taken to secure the reforestation of the denuded districts, as well as to conserve the forests still standing. The system of irrigation adopted by Parliament is working beneficially, and the land affected is expected to yield more abundant crops each succeeding year. Boring for water is being done on a definite plan. A tariff bill which was withdrawn in 1888 was reintroduced with changes in the session that opened on June 4, 1889. Another bill improves the civil-service regulations which have now been introduced in all the Australian colonies, whereas formerly patronage and partisan activity were the only roads to office. The permanent endowment of the state schools with revenues from Crown lands is in contemplation. The Legislature was occupied in 1889 by a public-health bill dealing specially with the sanitation of Melbourne, where an epidemic of typhoid fever occurred at the time of the exhibition. The Parliament was dissolved on March 11, and in the elections which took place on the 28th of that month the ministerial party obtained 63 seats, while only 32 went to the Opposition.

South Australia.—As in Victoria, the Legislative Council is elected by the people under a property qualification, whereas the House of Assembly is elected without limitation of suffrage. The Governor is the Earl of Kintore, who received his appointment in December, 1888. The following ministers at the beginning of 1889 presided over the six departments of state: Premier and Treasurer, Thomas Playford; Chief Secretary, James Garden Ramsay; Attorney-General, Charles Cameron Kingston; Commissioner of Crown Lands, Jenkin Coles; Commissioner of Public Works, Alfred Catt; Minister of Education, Joseph Colin Francis Johnson. In consequence of a vote of want of confidence carried on the motion of J. A. Cockburn, Minister of Education in the last preceding administration, these ministers resigned on June 24, and a new Cabinet was constituted, which is composed as follows: Premier and Chief Secretary, J. A. Cockburn; Treasurer, F. W. Holder; Attorney-General, B. A. Moulden; Commissioner of Pub-

lic Works, J. H. Howe; Minister of Lands, T. Burgoyne; Minister of Education, J. H. Gordon; without portfolio, Dr. Campbell.

The revenue in 1887-'88 was £2,354,743, and the expenditure £2,245,931. For 1888-'89 the revenue was estimated at £2,401,874 and the expenditure at £2,279,800. The amount of the public debt on Dec 31, 1888, was £19,397,700, the whole of which had been expended on railroads, harbors, and other productive works.

The population on Dec. 31, 1887, was estimated at 317,446, of which number 165,199 were males and 152,247 females. There were 10,831 births, 3,944 deaths, and 1,977 marriages during the year. The immigrants numbered 15,468, while 17,667 persons left the colony. According to the census of 1881 there were 6,346 aborigines and 2,734 Chinese.

The imports in 1887 amounted to £5,906,293, and exports to £5,330,780. The exports of wool were valued at £2,036,775; of wheat and flour, £1,058,248; of copper and copper ore, £240,333. Out of a total area of 578,361,600 acres, only 9,860,927 acres had been alienated at the close of 1887, and not more than 2,785,490 acres were under cultivation. There were 1,419 miles of railroad completed and 403 miles building by the end of 1887. The colony had 5,485 miles of telegraphs, with 11,007 miles of wire, including the overland telegraph line crossing the continent from Adelaide to Port Darwin and connecting with the British-Australian cable. In 1887 the number of letters and packets passing through the post-office was 15,181,309; of newspapers, 7,376,953.

Queensland.—Every adult male who has been in the colony six months is qualified to exercise the franchise, and property owners and leaseholders have votes in any districts where their land is situated. The members of the Legislative Council, as in the majority of the colonies, are nominated for life by the Crown. The present Governor is Gen. Sir Henry Wylie Norman, appointed in December, 1888, after the voluntary retirement of Sir Henry Blake. The ministry is presided over by Sir Thomas Mcllwraith, the leader of the National party, containing the same elements that formerly made up the "Squatter" or Conservative party, who when Premier before proclaimed the annexation of New Guinea, an act that the home Government disallowed. The Liberal Premier, Sir Samuel Griffith, resigned on Sept. 4, 1888, in consequence of a dispute with the Governor, and the National party, which as advocating the Protectionist theory had been victorious in the elections of May, 1888, succeeded to office, making the thirteenth change of government since the colony was founded in 1859. The ministry is composed of the following members: Premier and Chief Secretary and Treasurer, Sir Thomas Mcllwraith; Colonial Secretary, B. D. Morehead; Minister for Lands, M. Hume Black; Minister for Railways, H. M. Nelson; Postmaster-General and Minister for Public Instruction, J. Donaldson; Secretary for Mines and Works, J. M. Macrossan; Minister of Justice, A. J. Thynne; without portfolio, W. Pattison.

Queensland comprises the northeastern part of the continent and adjacent islands, with an estimated area of 668,497 square miles and 2,250 miles of coast. Of the total area 8,991,686 acres,

or less than 2 per cent. had been alienated at the close of 1887, the proceeds being £5,756,200. About one half the surface is covered with forests. Under an act passed in 1884, land can be selected for agricultural purposes up to 1,280 acres on a 50-years lease, and afterward can be acquired in fee simple on compliance with certain conditions. Pastoral leaseholds of the maximum area of 20,000 acres can be selected for the term of thirty years.

The estimated population on Jan. 1, 1888, was 366,940. The aborigines are supposed to number about 12,000. Chinese and Polynesian laborers have for three years past left the colony in greater numbers than the arrivals. The European immigrants in 1887 numbered 32,393; Chinese, 307; Polynesian, 2,079; the European emigrants, 16,414; Chinese, 821; Polynesian, 2,120. The number of births in 1887 was 13,513; deaths, 5,166; marriages, 2,914. The population of Brisbane, the political capital, with its suburbs, was 73,649 by the census of May 1, 1886.

The total value of the imports in 1887 was £5,821,611; of exports, £6,453,945. The chief exports, besides gold, are wool, valued at £2,368,711, and sugar, valued at £758,215. Other products are hides and skins, tin, and preserved meat. The gold product in 1887 was 425,923 ounces. Copper and galena are mined to some extent. Extensive and valuable coal deposits have been partly opened. The railroads at the beginning of 1888 had a length of 1,765 miles, and 653 miles more were in course of construction. There were 8,772 miles of telegraph lines and 15,677 miles of wire. The postal traffic in 1887 was 11,586,807 letters, 9,752,563 newspapers, and 1,509,276 packets.

The revenue of the Government in 1887-'88 amounted to £3,177,518, and the expenditure to £3,368,883. For four years the expenditures have exceeded receipts, but the returns for 1888-'89 show an increased revenue. The effects of the late drought have disappeared. Artesian wells have been successfully bored in many places. A rabbit-fence constructed across the colony serves its purpose of confining the pest. Among recent legislative acts is the creation of a railway commission, which began its functions in 1889.

Western Australia.—The settlement of the colony was begun by the colonists from Sydney in 1829. It has representative government, the Governor and his superiors sharing the legislative authority with a Legislative Council consisting of 17 elected and 9 nominated members. The present Governor is Sir Frederick Napier Broome, appointed in December, 1882. The seat of government is at Perth.

The revenue in 1887 was £377,903, and the expenditure £456,897. There was a debt of £1,290,700 at the end of 1887. The area is estimated at 975,920 square miles. The population on Dec. 31, 1887, was 42,488. During the year there were 4,450 immigrants, while the departures numbered 2,400. There were 1,556 births and 702 deaths. The area under cultivation at the end of 1887 was 105,582 acres out of an area 6,000 times as great. The imports in 1887 were valued at £832,213, and the exports at £604,656. The telegraph lines had a length of 2,955 miles. The post-office transmitted 2,253,814 letters in 1887. The colony has been found to contain rich deposits of copper and gold. Gold was first dis-

covered in the northern part of the colony in 1886, and now there are three promising gold-fields—Kimberley, Pilbarra, and Yilgarn. Steam machinery has been carted through the tropical forests to Kimberley and Yilgarn. Since 1882 the annual export of wool has risen from 819,758 to 8,475,243 pounds. A railroad, 242 miles in length, was completed in 1887, another of equal length was built in the following year, connecting Perth, the capital, with the harbor of St. George's Sound, one of 294 miles on the western coast has been authorized, and in 1889 a concession was granted for one 800 miles in length that will eventually connect Perth with Adelaide and the other Australian capitals, for building which the company will receive 20,000 acres for every mile of track laid. These railroads have been financed on the land-grant system, the company receiving 12,000 acres along the line for each mile constructed. The Crown lands are open to settlers for selection at the price of 10s. an acre, payable in annual installments of 6d. an acre.

Western Australia received representative government in 1870, and three years later a demand was made for responsible government. Lord Carnarvon, the then Colonial Secretary, in 1874 refused to consider the draft constitution that was framed by the Legislative Council. In 1883 Lord Derby announced the terms on which the home Government was prepared to grant the desired constitution. Sir Frederick N. Broome in 1884, when he had been ten months in the colony, thought that the change ought to be postponed till the colony had advanced greatly in wealth and population, and that then the tropical northern part of the colony should continue under the administration of the Crown. Later he advocated all the demands of the colonists. Resolutions of the Legislative Council were accepted in principle by the Imperial Government, with reservations as to the northern district and protection for the natives, in a dispatch of Lord Knutsford, dated Dec. 22, 1887. In May, 1888, the Governor transmitted a draft constitution, which was returned with the amendments of the Colonial Office. The colonists asked for an elective upper chamber, while the Government insisted on the old model of an upper house nominated by the Crown, but compromised by promising that the elective system should be introduced, should the colonial ministry of the day desire it, at the end of six years or after the population had increased to 60,000. Objections were raised in England to handing over the largest part of what remained of the "patrimony of the Crown" to 8,000 families, who would administer the lands chiefly with a view to the advantage of the section in which they were settled, if not for their own private benefit. The legislatures of the other Australian colonies, resenting the hesitancy of the Imperial Government to yield up the last remnant of Crown legislation on the Australian continent, voted petitions to the Queen seconding the demand of Western Australia for responsible government. The petition from Victoria supported all the demands of the Western Australians; New South Wales and Queensland asked that territory not included in the new constitution should be held exclusively for Australian and British settlement. The English officials proposed to divide the colony into two

parts by a line running east and west at about 26° south latitude or in the neighborhood of Murchison river. The sale, letting, disposal, or occupation of waste lands north of that line is to remain under the control of the Imperial Government, the proceeds of sales being invested to form an interest-bearing fund, or expended for the benefit of the district, while the interest of this fund and the annual land revenues will go into the treasury of Western Australia until the Imperial Parliament decides to erect the northern territory, which contains at present about 2,000 inhabitants, into a new colony or colonies. The northern region, unlike the settled district around Perth, is not adapted to agriculture. Its prosperity will depend on the gold-fields, the pearl fisheries, and the pastoral industry. For the protection of the natives an Aborigines Protection Board was created in 1886, which disposes of an annual grant of £5,000. This board will be continued, the members being appointed by the Imperial Government, against the protest of the Western Australian Council. A bill for granting responsible government to Western Australia, subject to the reservations and conditions made by the colonial authorities, was introduced in Parliament by the Government, but since these conditions were far from being accepted by the Western Australians, the bill was only carried to a second reading, thus affirming the principle of responsible government, but leaving the disputed points open for further negotiations and compromises.

Tasmania.—The Legislative Council is elective, the property qualification of electors being higher than for voters for members of the House of Assembly. The present Governor is Sir Robert G. C. Hamilton, who was appointed in January, 1887. The following ministers were in office in 1889: Premier and Chief Secretary, Philip Oakley Fysh; Treasurer, Bolton Stafford Bird; Attorney-General, Andrew Inglis Clark; Minister of Lands and Works, Edward Nicholas Coventry Braddon.

The revenue for six months of 1888, when the date of the financial year was changed, was £323,103, and the expenditure £328,512. The revenue for 1889 was estimated at £611,617, and the expenditure at £653,169; for 1889-'90 the prospects are more cheerful, a revenue being expected of £683,000, against £670,000 of expenditures. To extinguish the deficits of recent years the Government introduced a tax of 9*d.* in the pound on personal property, including that of non-residents, and of 4*d.* in the pound on all incomes. The public debt on Dec. 31, 1888, amounted to £4,545,370.

The estimated population at the end of 1887 was 142,478. There were during the year 4,736 births, 2,161 deaths, and 939 marriages. The number of immigrants was 14,980; of emigrants, 12,288.

The imports in 1887 amounted to £1,596,817; exports, £1,449,371. The exports of wool were valued at £415,425; those of tin at £407,857. The next most important articles are gold, fruit, and timber and bark. There were 318 miles of railroad completed, 123 miles under construction, 1,816 miles of telegraph lines, and 2,407 miles of wires at the end of 1887. The post-office forwarded 4,442,736 letters in that year.

Fiji.—The colony, which was formally annexed in 1874, is administered as a direct dependency of the Crown. The Governor also acts as High Commissioner and Consul-General for the Western Pacific. The present Governor is Sir John Bates Thurston. The native Fijians, who numbered 110,754 in 1887, are Wesleyan Christians, except eight per cent., who are Roman Catholics. There were besides 2,105 Europeans, 838 half-breeds, 6,085 Indian coolies, and 2,354 Polynesian immigrant laborers. Rotunah, a dependent island administered by an English commissioner, had 2,303 inhabitants. The imports in 1887 were £188,071 in value, and the exports £281,080. The export of sugar was 12,831 tons, valued at £205,294.

British New Guinea.—The southern part of New Guinea, which was made a British protectorate after the annexation of the northeastern coast by Germany, has an area of about 86,457 square miles, and a population of 135,000 Papuans. The white population has not hitherto exceeded fifty souls. There is a missionary settlement at Port Moresby, which is now said to possess hotels, water supply, and other conveniences of a civilized town. By the New Guinea act of November, 1887, the administration was placed on a new basis, and on Sept. 4, 1888, British sovereignty was proclaimed. The sum of £15,000 per annum is guaranteed for ten years by the colony of Queensland to meet the expenses of administration, New South Wales and Victoria having promised to contribute equally with Queensland to raise this amount. Dr. William McGregor was appointed Administrator of the new possession. Deputy Commissioner Musgrave, in his official report, asserts that the coast is not more unhealthful than northern Queensland, although residents are subject to fever. The mountain regions of the interior he believes to be remarkably salubrious. The country is said to be well suited to the raising of cattle, horses, sheep, pigs, goats, and poultry, and to the cultivation of sugar, tobacco, bananas, pineapples, yams, sweet potatoes, and various tropical fruits. In the jungle sago, rattan, and copra can be gathered. Promising discoveries of gold have been made. The natives are not averse to labor, since they already collect, cure, and prepare for shipment copra, gum, and *bêche de mer*. The *bêche-de-mer* and mother-of-pearl supplies are nearly fished out, but the copra industry is capable of indefinite expansion. Much is expected also from the timber resources of the island. Great numbers of applications for land have been made by individuals, syndicates, and companies. In the neighboring Louisiade Islands gold has been found in apparently large deposits, and Australian gold-diggers have invaded the islands in large numbers.

AUSTRIA-HUNGARY, a dual monarchy in Central Europe, composed of the Empire of Austria and the Kingdom of Hungary. The two states are united in the person of the sovereign, and have a common army, navy, and diplomacy. They also form a customs union by virtue of a financial convention called the *Ausgleich*, which is renewed and amended at the end of every ten years. Common affairs are managed by ministers of the Emperor's selection, subject to the sanction of a body called the Delegations, chosen

by the Austrian Reichsrath and the Hungarian Parliament, each being represented by sixty members, two thirds of whom are chosen by the Lower House from among its members, and one third by the Upper House.

The reigning Emperor of Austria and King of Hungary is Franz Josef I, who succeeded his uncle, Ferdinand I, in 1848. The death of the Archduke Rudolf made the Emperor's brother, Karl Ludwig, heir to the throne; but he renounced his rights in favor of his son Franz, born Dec. 18, 1863.

The Ministry of Foreign Affairs and of the Imperial House for the whole monarchy is directed by Count Kálnoky de Köröspatak, born in Letowitz, Moravia, Dec. 29, 1832, who was appointed on Nov. 21, 1881, having for a year or two previously represented Austria-Hungary at the court of St. Petersburg. The Minister of War for the whole monarchy is Baron Maj.-Gen. Ferdinand Baur, who succeeded Count Bylandt-Rheydt on March 16, 1888. The Minister of Finance for the whole monarchy is Benjamin de Kállay, appointed on June 4, 1882.

Commerce.—The total value of imports in 1887, exclusive of precious metals, was 562,700,000 florins; of exports, 648,800,000 florins. Of the total imports of 1886, amounting to 539,223,418 florins, 333,458,308 florins entered the customs territory by way of Germany, 95,330,122 florins through the port of Trieste, 10,094,153 florins from Roumania, 33,410,920 florins through Fiume and other ports, 23,464,820 florins across the Russian frontier, 18,070,037 florins from Italy, 15,698,518 florins from Servia, 9,559,611 florins from Switzerland, 296,083 florins from Montenegro, and 790,774 florins from Turkey. The special trade of Hungary in 1887 amounted to 440,619,404 florins of imports, 85.15 per cent. of which came from Austria, and 405,991,407 florins of exports, 73.90 per cent. of which went to Austria. Barley and wine are the chief agricultural products exported, and in some years there is a considerable surplus of wheat for exportation. The mineral products of Austria for 1887 had a total value of 72,067,948 florins, and the metals extracted were valued at 27,204,556 florins. The annual value of Austrian manufactures was estimated at 1,200,000,000 florins. The mineral products of Hungary in 1886 were valued at 22,617,834 florins, not reckoning produce of salt mines, of the value of 13,299,421 florins.

The commercial treaty with Switzerland, which went into operation on Jan. 1, 1889, contains important reductions in the general tariffs of both states, governing, in conjunction with the new treaty with Italy, running from Jan. 1, 1888, to Jan. 1, 1892, the tariff on imports from Germany and other countries having most-favored-nation treaties with Austria-Hungary. The Swiss treaty was signed on Nov. 28, 1888, and ratified on Dec. 28. It remains in force till Feb. 1, 1892, and from that time will be continued by tacit agreement, subject to abrogation by either party on twelve months' notice. The treaty with Germany was prolonged by a provisional arrangement till June 30, 1888, and in default of notice from either power prior to Feb. 15, 1888, continues in operation from year to year, unless renounced by one party or the other. The treaties

with England and Belgium are terminable on a year's, and those with France and the Netherlands on six months' notice. The Turkish treaty of May 22, 1862, expires on July 6, 1890, and negotiations for a new one are in progress. All efforts to renew the commercial convention with Roumania, which expired on June 1, 1886, have failed. Besides the Swiss and Italian treaties, Austria-Hungary has concluded a conventional tariff with Servia, with reductions favorable to exports from both countries.

Navigation.—The Austro-Hungarian merchant marine, in the beginning of 1888 comprised 68 ocean steamers, of 80,203 tons; 91 coasting steamers, of 15,307 tons; and 9,569 vessels, including coasters and fishing smacks, of 191,757 tons; total, 9,569 vessels, of 287,267 tons. The number of vessels entered at Austro-Hungarian ports in 1886 was 66,635, of 7,588,658 tons; the number cleared, 66,381, of 7,578,975 tons. The Austrian flag was carried by 83 per cent. of the vessels and the same percentage of those cleared, the Italian tonnage coming next, and the British third.

Railroads, Posts, and Telegraphs.—The Austrian state lines of railroad on Jan. 1, 1888, had a total length of 3,789 kilometres, exclusive of 84 kilometres of Government railroad worked by companies, while the companies operated 8,674 kilometres of their own lines, and owned 1,607 kilometres more, worked by the state.

The total length of Hungarian railroads was 10,121 kilometres. Baross, the Hungarian Minister of Communications, introduced a new system of passenger fares, by which the country is divided into fourteen zones. Uniform rates are charged from any place in one zone to any place in another, and between all stations in the same zone there is put one price. The average rate of fares is about 25 per cent. less than formerly. The Hungarian Legislature in 1867 adopted the system of guaranteed railroads, then common in European countries, and by 1874 a large network had been built, which has been of great benefit in the economic development of the country, but which was administered from the beginning for private gain to the neglect of public interests, and through stock speculation has cost the state more in guaranteed interest than it would have cost to build the railroads. At length, in common with the neighboring countries, Hungary adopted the system of state railroads, and gradually bought up the lines of the companies until, with the acquisition of the Hungarian Western Railroad and the line leading into Galicia, the entire network is now in the hands of the state. Lines that under private management, were unable to earn their running expenses, now return a fair profit notwithstanding recent reductions in freight tariffs ranging from 7 to 46 per cent.

The number of letters and postal cards sent through the Austrian post-office during 1887 was 462,907,000; of patterns and printed inclosures, 59,288,000; of newspapers, 93,621,000. The receipts of the posts and telegraphs were 27,635,753 florins; expenses, 23,824,267 florins. The Hungarian post-office forwarded 128,113,000 letters and postal cards, 16,647,000 patterns and printed inclosures, and 50,531,000 newspapers. The postal and telegraph receipts were 10,868,551

florins; expenses, 9,301,374 florins. The Austrian telegraph lines in 1887 had a total length of 24,672 kilometres, with 66,430 kilometres of wire. The number of messages sent during the year was 7,431,131. The length of the Hungarian lines was 11,215 kilometres; length of wires, 41,520 kilometres; number of messages, 3,621,832. In the Occupied Provinces there were 2,000 kilometres of lines, with 3,410 kilometres of wire; number of dispatches in 1886, 288,000.

The Common Budget.—The budget of the Delegations for common expenses amounted in 1888 to 135,910,000 florins. The budget estimates for 1889 call for 139,157,324 florins, of which 39,698,314 florins represent the surplus from customs, 96,518,566 florins are assessed on the two parts of the empire, and the remainder represents receipts of the various ministries. Of the expenditure the two chief items are 121,131,004 florins for the army and 11,318,227 florins for the navy. The budget for 1890 amounts to only 129,351,708 florins, of which 113,960,160 florins are ordinary and 15,391,548 florins extraordinary expenditure. The customs receipts are estimated at 39,953,850 florins, leaving a sum of 89,397,858 florins to be provided out of Austria and Hungary for common requirements. The extraordinary army expenditure amounts to 15,358,948 florins, and includes new accoutrements for the infantry, repeating carbines for the cavalry, and additional fortifications in Galicia, costing 2,674,000 florins.

The Army.—The military forces of the dual monarchy are divided into the active army, the reserve, the Landwehr, and the Landsturm. The active army and its reserve are under the control of the common Minister of War, while the territorial armies of the two monarchies are controlled by the Ministers of National Defense. The peace footing of the standing army in 1888 was 301,042 officers and men of all arms. There are 102 regiments of regular infantry, numbering 178,778 men; 1 regiment of Tyrolean Jägers and 32 battalions of Jägers, numbering 18,529 men in all; 41 regiments of cavalry, with 47,091 men; 14 regiments of field artillery, numbering 23,493 men; and 12 battalions of fortress artillery, with 7,181 men; besides technical artillery, engineers, pioneers, a railway and telegraph regiment, train, staff, and medical and other establishments. The Austrian Landwehr on the peace footing numbered 4,452 officers and men; the Hungarian Honved, 11,125; Austrian gendarmerie, 10,510. On the war footing the standing army numbers 905,618; the Austrian Landwehr, 234,926; the Honved, 167,360. The number of men liable to serve in the Landsturm is more than 4,000,000. There are 816 field-guns in peace, and in war 1,748. The number of horses in time of peace is 50,362, and in war can be increased to 217,000.

The common budget for 1890 continues a number of infantry and cavalry regiments above their peace strength, and provides for 14 new batteries of heavy artillery and an additional railway battalion. The Austrian infantry is rapidly being equipped with the Mannlicher repeating rifle of eight millimetres caliber, which is that of the French magazine rifle. The model of the Mannlicher rifle, which was adopted by the Austrian Government in 1888, has also

been decided on by the German authorities as the weapon for the German infantry. It is not properly a magazine rifle, but is loaded with cartridges in packages of five, with an attachment for inserting the cartridges successively in the breach. The cartridge contains the ball, powder, and percussion material all inclosed in the shell. The rifle can be used as a single loader only when the chamber is empty by introducing ordinary single cartridges. The bullets, like those adopted in France for the Lebel rifle, are coated with a thin nickle-washed envelope of steel to preserve the shape and penetrating power when striking a solid substance. The smokeless-powder that has been adopted in Germany was the invention of an Austrian chemist. Although a powder that burns without much smoke is necessary for the effective use of a magazine rifle, this powder, while adapted for skirmishing and picket-firing, can not be used by large bodies of infantry in close line of battle, as was shown in the Austrian autumn manoeuvres of 1889, when a large number of soldiers were overcome by the powerful fumes, and many were fatally asphyxiated.

The Navy.—The navy is under the supreme command of the chief of the naval department of the Ministry of War. The naval forces consisted in 1888 of 11 iron-clads, 8 corvette cruisers, 8 torpedo cruisers, 12 coast guards, 9 transports, 2 monitors, and 42 torpedo boats. The cruiser, "Custoza," the turret ship "Tegethoff," and the "Erzherzog Albrecht" are the most powerful of the older vessels. The "Kronprinz Rudolf," a central citadel barbette ship, launched in July, 1887, carries 3 48-ton Krupp guns. "The Stephanie," a belted barbette ship, armed with 2 48-ton guns, was launched in April, 1887. Three of the torpedo vessels have attained a speed of 19 knots when fully equipped for cruising. The navy is recruited both by conscription and enlistment. A Seewehr of the coast population, corresponding to the Landwehr, was organized in 1888. The term of service in the navy is the same as in the army.

Austria.—The Cisleithan Monarchy is officially known as the kingdoms and provinces represented in the Reichsrath. It is composed of seventeen states possessing separate Diets, which exercise a large measure of home rule. The Provincial Diets are composed of bishops of the Roman and Greek Churches, heads of universities, and representatives of land-owners, of towns, of boards of trade and industry, and of rural communes. These bodies are competent to legislate on matters of local administration, the promotion of agriculture, charities, and public works, and to levy taxes for these purposes and for the maintenance of schools and churches. The Reichsrath consists of two chambers. The House of Lords is composed of 20 archdukes, 66 territorial nobles, 10 archbishops, 7 prince-bishops, and 109 life members. The House of Deputies contains 353 members, of whom 85 are elected by land-owners, 116 by urban constituencies, 21 by chambers of commerce and trade guilds, and 131 by rural constituencies. Bohemia has 92 representatives; Galicia, 63; Lower Austria, 37; Moravia, 36; Styria, 23; Tyrol, 18; Upper Austria, 17; the coast provinces of Gorizia, Istria, and Trieste, 12; Carniola, 10; Silesia, 10; Carinthia.

9; Bukowina, 9; Dalmatia, 9; Salzburg, 5; Vorarlberg, 3. The following rights are bestowed by patent on the Reichsrath: Consent to all laws relating to military duty; co-operation in laws relating to trade and commerce, customs, banking, the postal service, railroads, and telegraphs; and examination of the budget, tax laws, loans, and the conversion of the funds, and a general control of the debt. All bills before becoming law must receive the sanction of both houses and of the Emperor.

The Austrian Cabinet is composed of the following members: President and Minister of the Interior, Count Edward Taaffe, appointed on Aug. 19, 1879; Minister of Education and Ecclesiastical Affairs, Dr. Paul Gautsch von Frankenthurn; Minister of Finance, Dr. J. Dunajewski; Minister of Agriculture, Count Julius Falkenhayn; Minister of Commerce and National Economy, Marquis von Bacqueheim; Minister of National Defense, Lieutenant Field-Marshal Count S. von Welsersheimb; Minister of Justice, Count Friedrich von Schönborn, appointed on Oct. 13, 1888; without portfolio, Baron Prazak, appointed on Oct. 13, 1888.

Area and Population.—The area, in square miles, and the population of the lands represented in the Reichsrath as estimated on Dec. 31, 1887, are as follow:

PROVINCES.	Area.	Population.
Lower Austria	7,654	2,538,993
Upper Austria	4,631	778,319
Salzburg	2,767	171,001
Styria	8,670	1,270,552
Carinthia	4,005	360,979
Carniola	3,856	500,243
Coast-land	3,084	693,134
Tyrol and Vorarlberg.....	11,324	924,518
Bohemia.....	20,060	5,789,533
Moravia	8,583	2,227,067
Silesia	1,987	592,598
Galicia	30,307	6,403,572
Bukowina	4,035	629,247
Dalmatia	4,940	521,936
Total Austria	115,903	23,447,192

The males numbered 11,456,387, and the females 11,990,805. There were 889,478 births, exclusive of still-births, 672,302 deaths, and 182,088 marriages in 1887; surplus of births over deaths, 217,176. Of the total births 14·89 per cent. were illegitimate. The number of Austrian emigrants arriving in the United States in 1886 was 22,006; in 1887, 24,786. According to the last census, 8,005,452 inhabitants of Austria proper have German for their mother tongue; 5,181,611 speak Bohemian, Moravian or Slovakian; Polish, 3,239,356; Ruthenian, 2,794,554; Slovene, 1,140,548; Servian or Croatian, 563,371; Italian, 668,653; Roumanian, 190,799; Magyar, 9,887. Vienna with its suburbs had about 1,270,000 inhabitants in 1887; Prague, 170,000; Trieste, 144,844; Lemberg, 109,746.

Finances.—The revenue of Austria has not increased in recent years, and the accounts since 1883 have shown an average annual deficit of nearly 25,000,000 florins. The ordinary revenue for 1888 is given in the financial estimates as 497,667,904 florins of which 100,043,000 florins are derived from the land, house, income, industrial, and other direct taxes; 39,462,500 florins from customs; 88,252,800 florins from excise; 20,-

452,000 florins from salt; 77,385,400 florins from tobacco; 18,800,000 florins from stamps; 33,080,000 florins from judicial fees; 21,500,000 florins from the state lottery; 3,972,300 florins from direct taxes; 27,930,000 florins from posts and telegraphs; 38,771,950 florins from railroads; 4,122,430 florins from forests and domains; 62,830,336 florins from mines; 2,122,549 florins from state properties; and 3,750,250 florins from other sources. The extraordinary revenue is set down as 16,803,932 florins, making the total receipts of the treasury 514,471,836 florins. The total expenditures are estimated at 535,715,753 florins, of which 486,855,160 florins are for ordinary and 48,860,593 florins for extraordinary purposes. Of the ordinary expenditures 16,248,980 florins are allocated to the Ministry of the Interior, 11,944,802 florins to education, 6,459,030 florins to public worship, 1,419,330 florins to the central administration of the Ministry of Worship and Education, 10,453,760 florins to the Ministry of National Defense, 4,650,000 florins to the imperial household, 1,866,914 florins to the Cabinet and Reichsrath, 11,873,162 florins to the Ministry of Agriculture, 92,571,525 florins to the Ministry of Finance, 19,891,100 florins to the Ministry of Justice, 56,756,410 florins to the Ministry of Commerce, 16,696,246 florins to pensions and grants, 99,229,806 florins to contributions for common affairs, 135,680,084 florins to the public debt, and 1,114,011 florins to other accounts. The budget estimates for 1889 make the total revenue 538,515,245 florins, and the expenditure 538,345,786 florins.

The chief burden of the general debt of the empire falls on the Cisleithan Monarchy, Hungary contributing only 29,338,000 florins to the total annual interest of the consolidated debt, and Austria 120,851,900 florins. The capital of the general consolidated debt is 2,701,329,831 florins, to which should be added a floating debt of 100,720,991 florins, and annuities that have a capitalized value of 13,710,471 florins. Austria's special debt consists of 881,253,370 florins of consols, a floating debt of 3,006,136 florins, and annuities for the redemption of lands of the capitalized value of 98,952,451 florins. The total debt of Austria amounts to 152 florins per capita, and the interest to 5·32 florins.

Legislation.—The great imperial questions of the tariff and military reform, which have helped to hold together for ten years the heterogeneous elements that compose the ministerial majority, having been settled before the beginning of 1889, and the Ausgleich having been renewed after protracted negotiations with Hungary, the Taaffe ministry entered on a critical period. The pledges given by the Government embraced reforms in the assessment of the income tax and of various industrial taxes and the reform of the system of criminal and civil procedure. The legal system in civil cases entailed a denial of justice to poor clients, because all pleadings are required to be written and the procedure is prolonged by useless formalities. A new criminal code was adopted in 1889. A law prohibiting the sale of all foreign lottery tickets and the issue of domestic lottery tickets of all kinds, aside from the state lottery, was passed in March. In accordance with this act, Dr. Dunajewski, the Minister of Finance,

prohibited subscriptions in Vienna for a Greek Government lottery to raise money for archaeological explorations that had been encouraged by the Austrian Foreign Office. A bill for the restriction of the liquor traffic was drawn up on the basis of reports showing that drunkenness was spreading. The clerical party has induced Dr. Gautsch, the Minister of Education, to introduce voluntary schools, such as the Belgian clericals borrowed from the English system of public education. Amendments to the public-school law made in the session of 1889 provide that religious instruction shall be imparted and directed by the ecclesiastical authorities with the approval of the provincial school authorities, and in case of disagreement, the Minister of Education shall decide. The ecclesiastical authorities have alone to decide what shall be taught. Religious teachers, ecclesiastical authorities, and religious societies must conform to the school laws and the regulations of the educational authorities. Attendance in school is required from the age of seven to the age of fifteen, though after six years of schooling children will be excused from full attendance for good reasons at the request of parents or guardians. Private institutes are subject to the supervision of the educational authorities, and the erection of a public school in any locality can be omitted when there is a private school fulfilling the requirements of the education laws. This clause not only facilitates the establishment of conventual schools, but relieves people patronizing them in many cases from their share of the cost of public education.

Bohemian Politics.—The Rump Diet of Bohemia, from which the German members absent themselves, enacts new measures each year for the preservation of the Czech language and nationality, one of the latest being a law subjecting Czech parents to a fine when they send their children to German schools. The old Czechs, who, through their alliance with the Ultramontanes, the Galicians, and the Feudalists, have secured the equality of their language, do not go far enough to satisfy the awakened aspirations of the Czech nation, which, recalling its ancient glories, is captivated by the extravagant promises of the young Czech party, led by Dr. Gregř. The young Czechs aim to separate Bohemia from Austria, crown the Emperor as King of Bohemia in the capital of St. Wenceslas, and give the restored kingdom an independent constitution and equal rank with Hungary and Austria in the federal empire. In the elections of 1889 the old Czechs lost two thirds of their seats to the young Czechs, retaining forty-one, while the Germans kept the sixty-two seats that they held before. The young Czechs are considered a dangerous and unpatriotic party, not by the Germans alone, but by the friends of the Government. Their organs have often denounced the German alliance, and hinted at a restoration of Bohemia to her place among nations by the aid of Russia. In the debate on the army bill they went as far as the Hungarian Radicals in their opposition to German as the official language of the army, and were the only ones except the Anti-Semites to vote against the bill. The German Liberals were elated over the young Czech victory as a proof of the failure of the Taaffe system of concession and compromise;

but the Government, instead of gratifying the Germans by punishing the electors, held fast to the policy that had been successful in averting race conflicts for ten years, appointing Count Thun-Hohenstein to the governorship of Bohemia when it was rendered vacant by the retirement of Baron Krauss. The new governor is attached to the old Czech party, belonging to the section that is most ready to share the ideas of the young Czechs.

Riots in Vienna.—A strike of the street-car drivers in Vienna began on Easter Sunday. The men complained that they had to work from fourteen to eighteen hours a day, for wages averaging about a florin and a quarter. They were subjected to a vexatious system of fines for delays that are often entirely beyond their control. The public, which had long protested against the overcrowding of cars, sympathized with the "tramway slaves," who also suffered from the avaricious management of the company. There were several encounters between friends of the striking drivers and the police on Sunday. In the evening dragoons were sent to patrol the streets, and they likewise were assailed with stones. On Monday the strike became general. The Tramway Company sent out hostlers and inspectors with cars, which were stoned by sympathizers of the striking drivers. The police were powerless, and the cavalry that were sent to clear the streets of the suburbs held by the rioters were received with missiles. Beer shops and *cafés* were taken possession of and used as fortresses by the rioters, who were no sooner dispersed in one quarter than they appeared in another to continue the disturbances. In the evening infantry were called out to re-enforce the cavalry. The working population of Favoriten and Hernals, not the strikers themselves, tore up the tracks and broke the windows of the cars. Many empty cars were overturned on their routes, and one that was full of passengers. On Tuesday, while police held the depots and troops guarded the streets, cars were enabled to run until evening, when the rioters held the field, although the troops were largely increased. The Socialists were thought by some to have instigated the disturbance, while others held the Anti-Semites responsible. A well-known Anti-Jewish agitator was said to have been active in preparing the strike. There were many Jews among the directors and stockholders of the company, and hostility toward Jews in general, and Jewish capitalists in particular, was evinced, as was natural with a state of feeling existing among the working-class citizens that had led to the election of 11 Anti-Semites out of 17 new members sent to the Municipal Council. The authorities were reluctant to use extreme measures; but when the Emperor returned to Vienna, he told Baron Krauss, the head of the police, that the riots must be brought to an end. At the same time he showed his sympathy for the grievances of the men on strike by appointing an interview with a deputation of the drivers. The company was finally brought to terms by the action of the Municipal Council in fining it 50,000 florins for breach of its charter in not conveying passengers on holidays, and holding over it a fine of 10,000 florins for every additional day that it continued to withhold the street-car service.

Thereupon it agreed to reduce the hours of work to 12, to pay for overtime, and to abolish exorbitant fines. During the disorders 460 persons were arrested. The number of wounded was 208, including 20 soldiers and 40 policemen. The striking drivers took no part in the excesses or disturbances.

Hungary.—The legislative power is exercised by a Parliament of two houses. The House of Magnates, under the law of 1885, is composed of 20 archdukes, 286 hereditary peers, paying above 3,000 florins of land tax per annum, 40 ecclesiastical dignitaries of the Latin and Greek churches, 11 representatives of the Protestant confessions, 82 life peers, 17 official members, and 3 delegates of Croatia-Slavonia. The House of Representatives consisted in 1887 of 413 representatives of the towns and rural districts of Hungary and Transylvania and 40 delegates of Croatia and Slavonia. Croatia has a separate Diet and enjoys a measure of local self-government. The Hungarian ministry is responsible to Parliament. Its composition in the beginning of 1889 was as follows: President of the Council and Minister of Finance, *ad interim*, Coloman Tisza de Boros-Jenő, appointed Nov. 25 1875; Minister of the Honved or Militia, Baron Géza Fejérváry; Minister near the King's Person, and Minister of the Interior *ad interim*, Baron Béla Orczy; Minister of Education and Public Worship, Count Albin Csáky, appointed in September, 1888; Minister of Justice, Theophile de Fabiny; Minister of Public Works and Communications, Gabriel de Baross; Minister of Agriculture, Industry, and Commerce, Count Paul Széchényi; Minister for Croatia and Slavonia, Coloman de Bedekovich.

Area and Population.—Hungary, with Transylvania, has an area of 108,258 square miles and a population, as estimated at the close of 1887, of 14,715,927 souls; Croatia and Slavonia, with an area of 16,773 square miles, contained 2,065,910 souls; and the town and *enclave* of Fiume, outside the customs frontier, 8 square miles, had 22,029 inhabitants. The military population numbered 97,157, making the total population of the lands of the Hungarian Crown 16,901,023. The area of the Hungarian monarchy is 125,039 square miles, which gives a density of 135 per square mile, as compared with 191 in Austria. The number of births in 1886 was 759,617; of deaths, 539,535; of marriages, 160,674; the excess of births over deaths, 220,082. The proportion of illegitimate births was 8 per cent. The population of Buda-Pesth in 1886 was 422,557.

Finance.—The revenues from various sources for the year 1889, were estimated as follow:

SOURCES OF REVENUE.	Florins.
State debts	17,905,029
Bureau of Accounts	1,895
Ministry <i>ad latus</i>	200
Ministry of the Interior	1,015,068
Ministry of Finance	252,306,088
Ministry of Communications	12,667,858
State railroads	43,040,500
Ministry of Agriculture	11,983,903
Ministry of Instruction	800,405
Ministry of Justice	704,833
Ministry of Defense	264,382
Total ordinary revenue	340,690,166
Transitory revenue	6,561,988
Grand total	347,252,154

The expenditures for 1889 were estimated as follow:

HEADS OF EXPENDITURE.	Florins.
Civil list	4,650,000
Chancellery	73,380
Diet	1,253,671
Quota of common expenditure	23,027,919
Pensions, Austro-Hungarian	62,143
Pensions, Hungarian	5,789,142
National debt	117,680,010
Guaranteed railroad debts assumed by the state	11,634,243
Guaranteed railroad interest	7,343,781
Administration of Croatia	6,063,530
Accountant-General's office	110,100
Presidency of the ministry	334,930
Ministry <i>ad latus</i>	54,020
Ministry for Croatia	36,080
Ministry of the Interior	11,525,154
Ministry of Finance	56,699,137
Ministry of Communications	14,220,448
State railroads	27,257,685
Ministry of Agriculture	11,639,472
Ministry of Instruction	6,707,783
Ministry of Justice	12,027,223
Ministry of Defense	10,742,221
Total ordinary expenditure	328,931,877
Transitory expenditure	4,177,743
Investments	12,794,870
Extraordinary common expenditure	8,670,245
Grand total	354,574,235

The budget, as voted by Parliament, brings the total of expenditures up to 356,000,000 florins, or 6,000,000 florins more than the expected revenue. The final accounts for 1888 make the total receipts 342,986,541 florins, while the expenditures were 352,746,503 florins, leaving a deficit of 9,769,962 florins, which was nearly 3,000,000 florins less than the deficit estimated in the budget. It is a favorable sign that the final accounts make a better showing than the budget for the first time in the history of Hungarian finance. The new Minister of Finance, Dr. Weckerle, expects to establish an equilibrium between revenue and expenditure, while providing means for educational and economic development, and for strengthening the national defenses. He proposes a comprehensive reform of the tariff in the interest of trade and manufactures.

The Army Bill.—A new army bill was carried through by the Government in 1889 after a Parliamentary contest lasting two and a half months, during which the Premier was subjected to a storm of popular disapproval and attacks of the Opposition more violent than he had to endure when he enforced the assent of Parliament to the occupation of Bosnia and Herzegovina against the will of the Hungarian nation. The bill was framed by the Minister-President in consultation with the military authorities and the Common Ministry, as it was necessary that a uniform law should be adopted for both halves of the empire. The military laws, like other laws bearing on common affairs and having the nature of a treaty, are made operative for a period of ten years. The most objectionable feature of the new bill was that making a knowledge of German a necessary condition for admitting one-year volunteers to the rank of officers of the reserves. Connected with this was another unpopular provision requiring one-year volunteers who could not pass their final examinations to serve a second year, the object being to qualify them for non-commissioned officers in the reserve. The German language was once familiar to all the middle and

upper classes. The younger generation, however, has been educated under the system of Magyarizing, which was pursued by the late Minister of Education Trefort, in obedience to a national movement that was a part of the general reaction in non-German parts of the empire against the Germanizing policy of the old bureaucracy. While exterminating German from the primary schools, the Government embodied a provision in the educational act of 1883 making the study of German obligatory in the intermediate schools. In rebutting the objections to the army bill the ministers asserted that every one who had passed through the curriculum of the gymnasia knew enough German to fulfill the conditions of the officers' examination. This would be true if the educational laws had been carried out, but during the Magyar revival German has in many schools been entirely neglected. Statistics show that sixty per cent. of the graduates of secondary schools are quite ignorant of German. Hence there was widespread dissatisfaction over the military law that shuts out so large a proportion of the educated youth from the rank of officer, and since it runs counter to a patriotic impulse that has created a Magyar literature and exalted the national spirit, the Opposition seized the opportunity for a telling assault on the minister who has governed Hungary for fourteen years, and in the opinion of many has outlived his usefulness. There are two Opposition parties, which now for the first time could take common ground against the Government. The Conservatives, who call themselves the Moderate Opposition, led by Count Albert Apponyi, derive their support from the feudal aristocracy, who are kept out of what they consider their rightful place at the head of affairs by Tisza and his "Mamelukes," by which term they opprobriously designate the well-disciplined ministerial majority. Their friends and allies the Roman Catholic hierarchy object to Tisza as the advocate of secular education and civil marriage and as the chief instrument in bringing about the alliance of Austria-Hungary with the anti-Papal Government of Italy. The chiefs of the party, however, would accept the triple alliance and all the achievements of Tisza's administration. Their objection to him is personal, not political. They accuse him of tolerating gross administrative and electoral corruption, of shielding offending officials, and of filling the highest places in the government with incompetent persons who have won his favor by blind subserviency. The other Opposition party, the Extreme Left, can no more present a policy to replace Tisza's than can the Conservatives. It is the remnant of the party of Kossuth which still clings, rather as a party tradition than from present conviction, to the idea of a merely personal union between the two monarchies. During the excitement over the twenty-fifth paragraph of the military bill requiring examinations in German, the exiled patriot wrote from Turin that Hungary should have a separate national army. This exploded idea when revived by his followers found no lodgment in the popular mind.

The army bill was first discussed in the Austrian Reichsrath, where its severe provisions relating to service in camp met with much opposition. The bill in its original form was so

objectionable to Tisza's own party that no one besides himself and the Honved minister defended it in the Liberal Club. Article XIV was denounced by Liberal jurists, as well as by the Opposition, as abrogating the constitutional right of Parliament to determine the size of the army, because, while fixing the annual recruit at 103,100 men for the ensuing ten years, it omitted a clause contained in the acts of 1868 and 1879 limiting the operation of this provision to that period. This technical question of legal phraseology threatened to divide the ministerial party. Tisza at first declared that he would resign if his party would not uphold the bill as drawn up in conferences by which he was bound. Subsequently he offered to make a declaration to be entered on the records whereby, if a new army law should not be agreed on at the end of ten years, the Government should be bound to bring in a provisional recruiting act each year. Count Csáky, the Minister of Education, sent out a decree that the classes in German and German literature in the intermediate schools should use the German language in the class-room, and that students should be examined orally in German if their written papers are unsatisfactory. In defending the examination of candidates for the army in the German language the Prime Minister pointed out the dangers that would result in war from the inability of officers to understand the word of command or to communicate with their superiors, and declared that it was the prerogative of the Emperor to decide what should be the service language. This drew forth a protest from the Opposition, who accused the minister of foisting upon the Crown the responsibility for his acts.

The army bill was voted as the basis of a special debate in the Lower House on Jan. 29 by a majority of 267 against 141. Protesting students and citizens filled the galleries and lobbies, shouting "Tisza, retire!" When the President of the Chamber threatened to clear the house members of the Opposition frantically denied his right to expel spectators, while their friends in the gallery renewed their cries of "Resign!" "Down with the traitor Tisza!" The Premier addressed the House in his imperturbable manner, saying that it would be a sad omen for parliamentary government in Hungary when ministers resigned at the dictation of the streets. He left the building secretly in a closed carriage to escape being maltreated by the mob. His brother was stoned as he drove away, and Count Tibor Karolyi, one of the Opposition, was pelted with mud and roughly handled by mistake. The crowds broke gas lanterns and smashed windows where photographs of the Prime Minister were exposed. The police did not attempt to clear the streets till late, and in the evening the military had to be sent to their assistance. On the following day Hussars guarded the approaches of the House of Parliament, despite the protests of the Opposition. The students and town rabble again took possession of the streets, and many persons were injured before order was restored.

The agitation, which was allayed for a time by the death of the Crown Prince, broke out afresh on Feb. 11 and 14, simultaneously, with a visit of the King. The Opposition accused the Premier of having invited the King to Buda-Pesth

for the purpose of influencing the action of Parliament and awing his opponents into silence; and when the King, in an address to Parliament, rebuked the Opposition for their want of patriotism in resisting the proposals of the Government, Tisza was held responsible, and popular excitement was intensified. When complaints were made of rude treatment of students by the police, the minister said there was no way to distinguish them from street roughs. This difficulty the students decided to avoid by henceforth wearing bright-colored caps. A law student named Takasch, who was about to lead the mob across the Danube to demand of the King the dismissal of Tisza, was lodged in jail, giving the enemies of the Government an opportunity to declaim against the violation of the right of *habeas corpus*. A great demonstration against Tisza and the army bill was organized for Sunday, Feb. 17. The Government, instead of forbidding it, as some of the ministerialists advised, sent a force of police to clear the way. A procession of 25,000 persons, marshaled by students, marched through the city giving *Eljen* cheers for the King, and crying "Tisza, retire!"

In spite of the firm stand that he assumed at first, Tisza was led, as he had often been before, to make a compromise, to which he obtained the Emperor's consent. Words were introduced in paragraph fourteen restricting the operation of the clause relating to recruitment to ten years, and assurances were given that Hungarian military text-books would be used; that candidates could be examined in their mother tongue, Magyar or Croatian, on technical details, and need only show sufficient knowledge of German to understand military orders; and that a second year of service would not be required except from volunteers who had neglected their military studies, but were qualified in respect to income, moral character, and other requisites. These concessions gave the leaders of the Opposition a chance to denounce Tisza as a man who would not be bound by his declarations and who would concede principles in order to retain office, yet they broke the force of the hostile agitation. Some of the Premier's enemies charged him with jobbery, especially with procuring the construction of a Government railroad line near his property. Such attacks were, however, discounted by the better element of the party. The obstruction to the army bill and the political assaults on Tisza were continued with the object of keeping alive the popular dissatisfaction, and preparing for his defeat, if not in Parliament, at the popular elections three years hence. On March 19, Rohonczy, a Liberal deputy, fired a revolver at Coloman Schamozil, a student who had struck him on the floor of the House. This act gave rise to fresh demonstrations on the part of the students. Tisza's carriage was attacked on the following day, some of the deputies were bruised, and the military were called out to suppress the riot. The army bill was finally passed at the third reading amid ironical German cheers of "Hoch!" for the Prime Minister. The Austrian Upper House adopted the bill as amended by the Hungarian Chamber on April 8, and on April 10 it was voted by a two-third majority in the Austrian House of Deputies, and passed by the Hungarian House of Lords almost unanimously.

Reconstruction of the Cabinet.—The contest over the army bill warned Tisza of the necessity of strengthening his position by a reconstitution of the Cabinet. Fabinyi, the Minister of Justice, resigned, and was succeeded by Desider Szilagyi, who had formerly been a member of the Moderate Opposition and was accounted the ablest debater in Parliament. Baross took the provisional administration of the Ministry of the Interior from Oreczy. Count Paul Szechenyi, who, like Fabinyi, lacked parliamentary experience, retired from the Ministry of Commerce, and was succeeded by Count Julius Szapary. This department was converted into a Ministry of Agriculture, and a great part of its former business was transferred to the Ministry of Communications after the Austrian model. Dr. Weckerle was promoted to the head of the Ministry of Finance, which he had actually directed for some time. Szögenyi-Marisch, Assistant Minister of Foreign Affairs at Vienna under Count Kálnoky, though urged by the Emperor, was unwilling to take charge of the Ministry of the Interior, which continued to be administered by Baross till June, when the vacant post was filled by the appointment of Count Ceza Teleky, who went to work with the Minister of Justice on a project for the reform of local administration and of the antiquated municipal system of Hungary by giving the Central Government more power and influence over local government.

The Occupied Provinces.—Bosnia and Herzegovina, which were occupied by Austrian troops in accordance with the decision of the Berlin Congress, have been administered by Austria-Hungary since 1879, and form a part of the Austro-Hungarian customs union, though still nominally subject to Turkey. The Sanjak of Novi-Bazar has been held by an Austrian military force, but is administered by Turkish civil officials. The population of Bosnia, 16,200 square miles in extent, was 187,574 in 1885. Herzegovina, with an area of 3,540 square miles, had 187,574 inhabitants. The military forces in the provinces numbered 26,823, making their total population 1,362,914. There were 492,710 Mohammedans, 571,250 Greek Orthodox, 265,788 Roman Catholics, and 5,805 Jews.

For the administration of Bosnia and Herzegovina in 1889 the estimated requirements are 9,430,000 florins, exceeding the expected revenue by 40,000 florins. The expenses of the army of occupation are 4,423,000 florins. The Bosnian budget for 1890 shows a small surplus. It amounts to 9,686,641 florins, having grown from 5,686,790 florins in 1880.

The position of Austria-Hungary in the Orient was altered by the abdication of King Milan of Serbia and the repudiation of Austrian tutelage. Count Kálnoky, in addressing the Delegations, though denying that there was distinct danger to the peace, acknowledged a tendency to pessimistic views and the uncertainty of the situation, which might any moment change for the worse. The Emperor-King spoke in his reply to the addresses of the presidents of the Delegations of King Milan's regrettable renunciation of the throne, and expressed the hope that the wisdom and patriotism of the Servians would preserve their country from grave dangers. The

return of the anti-Austrian party to power in Servia was followed by the armament of the Servian militia and a revival of the Great Servian movement, disturbing Bosnia, which had almost settled down to peaceful development. Revolutionary proclamations appeared in Bosnia and Novi-Bazar, and disturbances occurred, the details of which were kept as secret as possible by the authorities, who enforced martial law with unusual rigor. In Russia it was rumored that Austria had come to an arrangement with the Porte for the occupation of the part of the Sanjak of Novi-Bazar still held by Turkish troops in accordance with the clause in the Treaty of Berlin stipulating that Austria may occupy the second portion when the two powers have arrived at an understanding. In Italy, where any further advance

of Austria toward Salonica would be regarded with distrust, the disturbances in the Sanjak were suspected of being a product of Austrian machinations intended to furnish a pretext for the annexation of the remaining half of Novi-Bazar. The Austrian administration of the Occupied Provinces has more recently been calculated to promote the prosperity of the country and conciliate the people, especially the Servian element, which is the most energetic and progressive. Whereas the Turks always selected a Phanariot Greek as Metropolitan of Mostar, the Austrian Administration appointed first the Serb Leontic Radulovich, and after his death in May, 1888, the Bosnian Seraphin Perovich, whom the Mussulmans deported in 1872 to Fezzan, where he remained till the occupation in 1878.

B

BAPTISTS. I. Regular Baptists in the United States.

—The "American Baptist Year-Book" for 1889 gives the statistics of the regular Baptist churches in the United States for 1888, as follow: Number of associations, 1,312; of ordained ministers, 21,420; of churches, 32,900; of members, 2,997,794; of baptisms during the year, 134,563; of Sunday-schools, 16,543, returning 123,381 officers and teachers, and 1,158,665 pupils. Value of church property, \$53,568,502. Amount of contributions reported: For salaries and expenses, \$6,218,388; for missions, \$943,814; for education, \$132,536; for miscellaneous purposes, \$2,068,644. The general statistics for the whole world, compiled from tables of 1888 and 1887, when the former were not at hand give: North America (including the United States, British Provinces, Mexico, the West Indies, and Central America and islands), 1,336 associations, 33,933 churches, 22,019 ministers, 3,116,724 members, and 141,566 baptisms during the year; Brazil, 6 churches, 7 ministers, 210 members, and 49 baptisms; Europe, including Great Britain, 80 associations, 3,546 churches, 2,596 ministers, 401,249 members, and 5,903 baptisms; Asia, 8 associations, 732 churches, 496 ministers, 71,474 members, and 4,919 baptisms; Africa, 3 associations, 88 churches, 76 ministers, 3,673 members, and 204 baptisms; Australasia, 6 associations, 178 churches, 291 ministers, and 15,128 members; total, 1,432 associations, 38,483 churches, 25,485 ministers, 3,608,458 members, and 152,631 baptisms during the year.

The 7 Baptist theological institutions in the United States returned for 1888, 53 instructors and 641 students for the ministry; 34 universities and colleges returned 349 instructors, with upward of 5,000 pupils, 869 of whom were preparing for the ministry; 32 seminaries for female education exclusively, 317 instructors, with 4,000 pupils; 42 other seminaries, 246 instructors, with 4,786 pupils, 299 of whom were preparing for the ministry; and 17 institutions for the colored race and Indians, 124 instructors, with 2,502 pupils, 285 of whom were preparing for the ministry; making in all, 132 institutions, with 1,089 instructors and 17,552 pupils, 2,094 of whom were preparing for the ministry. These institutions also returned the

aggregate value of their grounds and buildings at \$9,341,218; of libraries and apparatus at \$1,204,433; and of endowments at \$9,130,728. They received in 1888 gifts amounting to \$739,012, and had in their libraries 443,471 volumes.

The Baptist Congress met in its eighth annual session at Toronto, Ontario, Nov. 12. D. E. Thomson presided in the absence of the president. The subjects discussed were: "Organizations for Christian Work other than the Church," by Dr. L. A. Crandall, of Cleveland, Ohio, Rev. Joshua Donovan, of Toronto, and the Rev. Alexander Blackburn, of Lowell, Mass.; "Natural and Artificial Monopolies," by the Hon. David Mills, of the Dominion Parliament, Rev. Walter Rauschenbusch and Rev. Leighton Williams, of New York, and D. E. Thomson of Toronto; "The Authority of Christian Consciousness," by Prof. Albert H. Newman and thirteen other speakers; "The Relations of Church and State," by the Rev. A. H. Munro, of St. Thomas, Ontario, Mr. D. E. Thompson, and other speakers; "The Sabbath Question," by the Rev. J. W. A. Stewart, of Rochester, the Rev. A. P. McDiarmio, of Ottawa, and other speakers; and "The Disarmament of Nations," by the Rev. Dr. George D. Boardman, of Philadelphia, Mr. J. E. Wells, editor of the "Canadian Baptist," and Prof. Jacob G. Schurman, of Cornell University.

American Baptist Home Mission Society.

—The fifty-seventh annual meeting of the American Baptist Home Mission Society was held in Boston, Mass., May 17. The Hon. C. W. Kingsley presided. The total receipts for the year, exclusive of church-edifice loans repaid, had been \$375,255. Of the expenditures, \$151,860 had been applied to the payment of missionaries' salaries, \$65,777 to teachers' salaries, \$47,514 for special educational purposes, and \$24,314 to gifts for church-edifice work. The society's operations had been conducted in 45 States and Territories and in Ontario, Manitoba, Alaska, and three States of Mexico, where 790 laborers had been supported wholly or in part; of these agents, 178 had been laboring among foreign populations, 229 among colored people, Indians, and Mexicans, and 374 among American whites. Seventy-four new mission stations had been taken up—3 among the Indians, 1 among the

Chinese, 10 among the colored people, and 20 among the foreign populations. Seventeen hundred and ninety-five churches and out-stations had been supplied, 181 churches organized, 3,646 members received by baptism, and 786 Sunday-schools, having 53,065 attendants, taken care of. The whole number of members in the mission churches was 34,052; the amount of benevolent contributions reported from them, \$34,101. Missionaries to the foreign population were employed among the French, chiefly in New England; Germans, with whom the society co-operates with the German Baptist Conference; Scandinavians; Welsh; Bohemians; Poles; and Portuguese. The society had entered into co-operation with most of the State conventions or general associations of colored Baptists in the South. Twenty-one missionaries were employed in the Indian Territory, and attention had been bestowed upon the Indians at Pyramid Lake, Nev. Two missionaries were employed in Alaska. Missions were maintained among the Chinese at San Francisco, Cal., and Portland, Ore. Twenty-five missionaries and teachers, 19 of whom were natives of the country, were engaged in Mexico; they had occupied 44 stations and returned, 44 churches, 70 baptisms, and 6 schools, with 244 pupils. Eighty-seven churches had been aided by gifts and loans, in the amount of \$33,764, in obtaining houses of worship. The Loan fund amounted to \$119,719. An effort to secure \$15,000 for the erection of forty chapels had been successful. The educational institutions comprised 13 incorporated and 7 unincorporated schools, besides day schools in connection with several mission stations, and returned 165 teachers, with 4,183 enrolled pupils. Of these schools, 15, with 131 teachers and 3,106 pupils, were among the colored people; and 4, with 371 pupils, among the Indians. Four hundred and eight of the colored pupils were studying for the ministry. The Leonard Medical School of Shaw University, Raleigh, N. C., returned 43 students. A training school for nurses was in operation at Spelman Seminary, Atlanta, Ga.; a law school had been provided for at Shaw University; and industrial departments were attached to eight of the institutions.

Publication Society.—The sixty-fifth annual meeting of the American Baptist Publication Society was held in Boston, Mass., May 19 and 20. The Hon. Samuel A. Crozer presided. The receipts to the treasury were returned as having been larger than in any previous year, they having been in all the departments \$626,360. Of this amount \$461,341 had been received in the book department, \$134,652 in the missionary department, and \$30,366 in the Bible department. The assets had increased from \$711,805 at the end of the previous year to \$791,692. Ninety-eight publications had been added to the catalogue, and 30,819,850 copies of all the publications had been printed during the year, making the whole number of copies from the beginning of the society's operation 390,215,371 of books, pamphlets, tracts, and periodicals; of the number printed during the year 29,127,550 were of periodicals. One hundred and twenty-eight missionaries had been employed, under whose labors 955 persons had been baptized, 36 churches constituted, 420 Sunday-schools organized, and

521 institutes held and addressed; 256 Sunday-schools had been aided by gifts of from five to fifteen dollars' worth of books, Scriptures, periodicals, etc.; and 336 pastors and ministerial students have been aided with grants for their libraries, of values ranging from five to fifteen dollars. Reports were made of missionary work in Germany, Sweden, and Turkey (Constantinople, Armenia, and Bithynia). Grants had been made in the Bible department of 41,152 copies of the Scriptures in the English, German, Swedish, Danish, Spanish, French, Italian, Chinese, Welsh, Norwegian, Portuguese, Dutch, and Armenian languages, to the value of \$10,737 net. A fund of \$4,000 had been contributed for the further perfection of what is known as the "Bible Union Revised New Testament," and about \$6,000 for the completion of the revision and stereotyping of the Old Testament. A special committee which had been appointed at a previous meeting of the society reported concerning the rules to govern the further revision.

Missionary Union.—The seventy-fifth annual meeting of the American Baptist Missionary Union was held in Boston, Mass., May 15 and 16. The Hon. Francis Wayland presided. The receipts for all purposes during the past year had been \$415,144, and the appropriations (including \$16,750 added to permanent funds and accounts) had been \$423,318. Four Woman's Foreign Missionary societies—those of the East, of the West, of California, and of Oregon—had contributed in all \$112,750, which had been applied to the support of women missionaries and to labors among women. From the heathen missions—including those among the tribes of Burmah, in Assam, among the Telugus, in China, Japan, the Congo, and Liberia—were returned 1,179 out-stations, 279 missionaries, 780 native preachers, and 418 other native helpers, making a total of 1,477 missionary laborers; 642 churches, 236 of which were self-sustaining; 65,272 members; 5,337 baptized during 1888; 464 Sunday-schools with 7,905 pupils; 983 schools, 287 of which were self-supporting, with 1,060 native teachers and 18,574 pupils; and 608 churches and chapels; value of church property \$545,883; contributions of the native churches \$50,219. From the European missions in Sweden, Germany, Russia, Denmark, France, and Spain were returned 271 ordained and 508 unordained, in all, 1,296 preachers, 674 churches, and 69,141 members, with 4,971 baptized in 1888. The work of translating, printing, and distributing the Bible in the languages of the several missionary fields had been continued. Editions in Burman, Karen, and Shan were in press in Rangoon; the Kachin language was being reduced to writing, preparatory to translating the Bible into it; a translation into the Assamese language had been completed; translations were in progress into the Garo and the Naga languages of Assam; translations were being made into the Fiot, Bateke, and Balolo dialects of the Congo; revisions and new issues of other translations were mentioned; so that in one shape or another the publication of the Scriptures, or preparation for it, had been continued in sixteen languages or dialects.

The Woman's Baptist Foreign Missionary Society, Boston, received in 1888, \$74,433. It re-

turns of its work in Asiatic, European, and African mission fields, 80 schools with 3,510 pupils, 32 zenana pupils, 47 Bible women, and 243 baptisms.

The Woman's Baptist Foreign Missionary Society of the West, Chicago, Ill., received in 1888, \$31,603 and employed thirty missionaries. It also returned 114 Bible women, 26 station schools, with 1,375 pupils and 12 native assistants, and 57 baptisms.

The Woman's Baptist Home Mission Society, Chicago, received in 1888, in cash and gifts of goods, with balances, \$54,494. It employed 70 missionaries in cities and among foreign populations, etc., who, besides performing extensive general missionary labors, reported the organization of 28 Sunday-schools. It maintains a training school, the attendance upon which quite equals its capacity.

The Woman's American Baptist Home Mission Society, Boston, returned its receipts for 1888 at \$27,200. Its object is to furnish instructors in mission, freedmen's, and other schools among the destitute, of whom it had 38 at work.

Southern Baptist Convention.—The Southern Baptist Convention met in its thirty-fourth session at Memphis, Tenn., May 10. In this body are represented, in voluntary unofficial organization, the Baptists of the States of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Missouri, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, Indian Territory, and, partly, the District of Columbia. Within the territory are 611 associations, 8,036 ordained ministers, 15,343 churches, and 1,157,080 members, together with 9,923 churches of colored Baptists having 1,110,126 members, making the whole number of members 2,267,206. The Hon. Jonathan M. Haralson, of Alabama, was chosen president of the convention. The Home Mission Board returned its receipts for the year at \$69,399, the funds employed in co-operative work at \$58,983, and the amount expended in church building at \$27,103, while \$154,509 had been expended by the State boards. Three hundred and twenty-eight missionaries had been employed, who returned 4,837 baptisms during the year, 328 churches organized, 58 houses of worship built, and 343 Sunday-schools opened, having 10,170 teachers and pupils. Of the home missionaries, 12 had labored among the white population, 41 among the colored people, and 20 in Cuba; and there were now in Cuba 7 churches and 1,493 members. The Board of Foreign Missions had received \$102,633, and had expended upon its foreign work \$87,188. It returned, in its mission fields in Mexico, Brazil, Italy, China, and Japan, 47 stations and 140 missionaries and native assistants. The Southern Baptist Theological Seminary had endowment funds of \$500,000, and had been attended by 165 students. Resolutions were adopted approving of the work of the National Sabbath Union in its efforts to secure national legislation for the better observance of the Lord's Day. The movement (non-political) for the prohibition of the traffic in intoxicating liquors was approved.

Colored Baptist Conventions.—The meetings of the general associations of colored Baptists in the United States were held in Indianapolis, Ind., beginning Sept. 11. The Baptist African Missionary Convention of the Western States

and Territories is organized "for the purpose of disseminating the Word throughout the land, and especially to see that the Gospel of Jesus Christ reaches our brethren in black upon the burning plains of Africa," and is estimated to represent 1,200,000 Baptists, 18 higher institutions of learning with many other schools, and 60 newspapers. Complaint was made of ill-treatment which a part of one of the delegations to the conventions had received at the hands of a mob at a railroad station in Georgia. The meeting ordered an appeal made to the President of the United States and the Governors of States for the protection that belongs to citizens of the United States.

At the meeting of the Baptist Foreign Missionary Convention of the United States, seventeen States were represented by more than two hundred delegates. The financial report showed that the secretary had received during the past year \$7,372, and had expended \$6,750.

At the meeting of the American National Baptist Convention, reports were presented showing that during the past twenty-three years, the membership of the colored Baptist churches had increased from 300,000 to 1,362,273, with 20 State conventions, 4,376 district conventions, 7,527 ordained ministers, and 10,861 church buildings; that 48,651 persons had been baptized in 1888; that there were 20,405 teachers and 286,374 pupils in their Sunday-schools; and that their church property was valued at about \$5,000,000. Resolutions were passed asking white ministers to use their influence to subdue existing prejudices; advising the colored people to remove to the West, "where they may obtain recognition and grow up with the country"; and asking the President of the United States to recommend to Congress an appropriation of \$50,000,000 to aid the colored people to leave the South.

II. Free-Will Baptists.—“The Free-Will Baptist Register and Year-Book” for 1889 gives the statistics of fifty-seven yearly meetings and associations of Free-Will and Free Baptists: Number of quarterly meetings, 204; of churches, 1,619; of ordained ministers, 1,414; of licensed preachers, 214; of members, 86,201.

The current accounts for the Education Society for 1888 were balanced at \$4,481; while the amount of its invested funds was \$11,186. The institutions include five colleges, one of which (Storer College, Harper's Ferry, W. Va., is for freedmen), and six seminaries or preparatory institutes. The corner-stone of a new college, Keuka College, had been laid on Keuka Lake, near Penn Yan, N. Y. The receipts and expenditures of the Home Mission Society for 1888 were \$9,843, and its permanent funds footed up to \$11,700. The receipts of the Foreign Mission Society for 1888 were \$15,645, and the amount of its invested funds was \$18,977. The missions in Bengal and Orissa, India, returned: Number of communicants, 654; of pupils in Sunday-schools, 2,701; of pupils in day and others schools, 3,058, of whom 340 were Christian, 1,322 Hindoos, 102 Mohammedans, and 1,298 Santhals; added during the year by baptism, 62; native Christian community, 1,266; amount of contributions, 640 rupees.

The General Conference met in its twenty-seventh session at Harper's Ferry, W. Va., Sept. 25.

The Rev. O. B. Cheney, D. D., President of Bates College, was chosen president. The triennial report of the printing establishment gave the value of its assets at \$68,369, besides which it has an annuity fund. It issued nine periodical publications. The Foreign Missionary Society had received during the year \$25,496, or about \$7,000 more than in any previous year. The receipts of the Education Society had been \$6,048; those of the Home Mission Society, \$13,662. Heretofore the General Conference had never been incorporated, and had sustained to the yearly meetings the relations merely of an advisory body. The subjects of securing an act of incorporation for a General Conference Board, to be chosen by the General Conference, and of framing a new constitution, constituted the principal business of the present meeting. In shaping these measures consideration was had for the negotiations for bringing into affiliation with the General Conference other Free and Liberal Baptist organizations in different parts of the United States than the yearly meetings already represented in the General Conference. It was determined that the General Conference should be legally incorporated, and its corporate name should be the General Conference of Free Baptists, but the churches, quarterly meetings, yearly meetings, and associations, were left free to use interchangeably the names Free and Free-Will, or other names of similar import. The conference advised that the yearly meetings or annual associations be so arranged as to include whole States as far as practicable. A committee was appointed to confer with the General Baptist Association for the adjustment of questions between the two bodies. The organization of young Christians for mutual improvement and Christian work, to be a part and parcel of the regular church forces, under the supervision of the pastors, was commended; and Free-Will Baptist Churches sustaining societies of Christian Endeavor were requested to bring them under such relations with the denominational work. Women were, for the first time, present in the General Conference as delegates; the new feature was approved by resolution. For the supply of the smaller churches with preaching the conference advised that they be grouped, so far as could conveniently be done, under common pastors, by State boards or by committees of the yearly meetings. A committee was appointed to draft a plan for the consolidation of the three benevolent societies. Response was given to the question, What is the door into the Free-Will Baptist Church? as follows: "The Free-Will Baptist denomination is in no proper sense a church. It is an association of Christian bodies of like faith and practice. The churches of this denomination receive members by vote. When a person gives evidence of sound piety, on application he or she is so received as a candidate for baptism and membership, and on receiving baptism (which is performed by immersion) he or she is considered a member. When an immersed believer desires to become a member, such person is received by a simple vote. Such membership is usually recognized by the pastor giving such person the hand of fellowship." Respecting instruction in Sunday-schools, the conference advised "that while lesson-helps may be used with

advantage, yet the Bible should be the book to which we should appeal as the source of all authority as to religious truth; that simply reading answers from lesson-helps will only produce a very diluted knowledge of the Bible." Pastors and superintendents were advised to encourage the study of the lessons by other persons than those who regularly attend the Sunday-school. Efforts to develop distinctions upon the doctrine of sanctification were pronounced unnecessary and injurious to the cause of Christ. The conference expressed itself in favor of prohibition—of the importation of foreign as well as of the sale of domestic liquors—as the only means of dealing effectually with the liquor traffic and the evils attendant upon it; declared any compromise with the traffic, either by high or low license, wrong in principle and dangerous in practice; and condemned the use of intoxicating wines for sacramental purposes. The yearly meetings and associations were advised to take the advice and assistance of councils in the ordination, installation, and dismissal of pastors, and for that purpose to maintain standing committees on ordination and installation.

III. Seventh-Day-Baptist Church.—Statistical reports received by the corresponding secretary of the General Conference from 84 churches of this denomination give the number of members in the same as 8,027, and of additions by baptism during the year as 325. Reports from 75 Sabbath-schools give the aggregate number of members as 6,446, of whom 482 are teachers and 3,112 are members of the church. The number of members of Sabbath-schools baptized during the year was 305.

The anniversary meetings of the benevolent societies of the Church were held at Alfred, N. Y., in connection with the meeting of the General Conference in August.

The thirty-fourth annual meeting of the Education Society was held Aug. 23. L. A. Platts presided. The receipts for the year had been \$1,868 on interest account and \$1,867 on principal account. The present amount of endowments was returned at \$42,313. Reports were received from Salem Academy and College, West Virginia (organized Jan. 21, 1889, 54 registered students); Albion Academy, Wisconsin; Milton College, Wisconsin (222 students); and Alfred University, New York (303 students).

The forty-sixth annual meeting of the American Sabbath Tract Society was held Aug. 25. Charles Potter presided. The receipts for the year had been \$11,260. The resources of the publishing house were returned at \$8,981 in excess of liabilities. One bound volume and four new tracts had been published. The periodicals include the general weekly newspaper "The Sabbath Recorder," four Sabbath-school and other papers in the English language, a paper for English-speaking Jews and Jewish converts, a Hebrew, a Swedish, and a Dutch paper. The report of the executive board related its efforts in opposition to the passage of proposed national Sunday legislation.

The forty-seventh annual meeting of the Missionary Society was held Aug. 22. William L. Clarke presided. The receipts for the year had been \$12,239. The investments on account of the permanent fund amounted to \$5,394; on

account of the Ministerial fund to \$2,107. Reports were made from the mission fields of the principal items, of which the following is a summary: China, 5 American workers, 10 native assistants, 30 members, 29 boys and girls in boarding-school, 5 baptisms during the year, 2,822 patients at the dispensary; Holland, 2 missionaries, 4 baptisms; mission to the Jews, 2 laborers; Home missions, 27 workers, 73 additions by baptism, 4 churches and one Bible-school organized, 1 minister and 5 deacons ordained.

The Seventh-Day-Baptist General Conference met in its eighty-seventh anniversary, or seventy-fifth session, at Alfred, N. Y., Aug. 21. I. J. Ordney presided. The trustees of the Memorial fund reported the addition to the fund of \$6,500, the proceeds of a bequest. Reports were made by a committee appointed to facilitate communication between churches desiring pastors and preachers desiring places and a committee to correspond with isolated persons interested in the Sabbath. A "Permanent Committee on Young People's Work" was instituted for the promotion among the young people of the Church of Christian culture and work, particularly in the shape of systematic endeavor along the lines of the denominational benevolent enterprises. A committee appointed to memorialize legislative bodies respecting Sunday laws reported concerning the efforts it had made through the American Sabbath Tract Society. About 7,000 names had been obtained as petitioners against the "Blair Sunday Rest Bill"; a protest had been made before the United States Senate committee having that bill in charge against all prohibition of legitimate labor on Sunday, and equality under the law had been demanded for all Sabbath-keepers; and petitions had been presented to the Constitutional Conventions of North and South Dakota, Montana, and Washington, against the incorporation in the Constitutions to be framed by them of any provision which should require any person who had observed the seventh day of the week as his Sabbath also to rest from labor on Sunday; and against making any provision in the Constitutions wherein Sunday should be called the Sabbath. The Woman's Executive Board had also addressed the Woman's Christian Temperance Union concerning its position on the Sabbath question. The assistance of the General Conference had been given, through a committee appointed for that purpose, to the Mill Yard Church in London, England, in maintaining its claims to certain property and funds left for its benefit. Petitions had been addressed to the English Court of Chancery and to the General Baptists of London, to which no answers had yet been received. The conference declared the liquor traffic and social impurity enemies to the home, to society, to the Church, and to the state, total abstinence from all intoxicating beverages to be the imperative duty of every individual, and the suppression of both vices, by every practicable means, the duty of the state. The young men and women of the Church were exhorted to study the questions at issue in the Sabbath controversy. The committee on denominational history had secured the publication of articles on the subject and biographies in the "Sabbath Recorder," and had encouraged the incorporation of historical reviews into anniver-

sary and other occasional addresses, while partial reviews of the missionary and educational operations of the Church had appeared. An adverse report was made on a proposition to fix a permanent place for the meeting of the General Conference.

IV. Church of God.—The "Year-Book of the Church of God" for 1889 gives incomplete statistics of the sixteen elderships and scattering members which show that the whole number of members is more than 31,000. The number of ministers is 494, or 34 more than in the previous year. A missionary fund of \$2,000 a year is provided for by levying *pro rata* assessments on the annual elderships. A foreign missionary fund is slowly accumulating, but no foreign mission has been established. A missionary has been laboring in the Indian Territory since 1882, under whose auspices eight churches have been organized in the Cherokee nation and one in the Choctaw nation, which return in all more than 500 members. The general missionary work is prosecuted in Missouri, Kansas, Arkansas, and other States. Four local women's missionary societies are mentioned in the "Year-Book." Findlay College, Ohio, was opened in September, 1886, and began its second year's work, in 1887, with 170 students. The new building was dedicated and the president was formally inaugurated in June, 1888.

V. The Brethren Church, or Tunkers.—This body is described in the act incorporating its board of trustees as the "German Baptist, or Brethren Church." It has an organized existence in the States of Pennsylvania, Maryland, Virginia, West Virginia, Ohio, Indiana, Michigan, Illinois, Iowa, Wisconsin, Kansas, Nebraska, Tennessee, and California, and owns property and is carrying on its work in other States and in foreign countries. The local churches or societies provide their own meeting-houses or places of worship, and maintain religious services according to the usages of the Church. One or more districts are organized in each of the States, which hold district meetings and exercise certain jurisdiction over the local churches within their respective districts. The General Conference is composed of delegates from all the local churches, meets annually, and has jurisdiction of the general affairs of the Church, both in the United States and in foreign countries where its Christian work is carried on. The churches of twenty eight districts were represented in the General Conference of 1889.

The General Conference met in Harrisonburg, Va., June 12. Samuel S. Mohler, of Missouri, was chosen moderator. A report was adopted accepting an act of incorporation from the State of Wisconsin of a board of five trustees, to be known as the "Trustees of the General Conference of the German Baptist, or Brethren Church." The purpose of the institution of the trustees is declared to be to receive and hold the title to the real and personal property of the General Conference, wherever it may be situated, whether in the United States or foreign countries, to be used or designated to be used for missionary or other proper purposes of the Church, and not specially for any local church or religious society. The Book and Tract Work Society had received \$2,549, and had expended \$1,757. There

had besides accrued of endowments \$16,365 in the previous year and \$7,893 in the present year, and there were now returned \$11,233 of interest-bearing, and \$13,025 of non-interest bearing funds. Including the endowments, its estate was valued at \$25,637, the increase in value from the previous year having been \$8,286. It had issued 188,152 copies of publications, and had sold and distributed 121,148 copies.

The General Church Erection and Missionary Committee had received \$6,237, and returned an Endowment fund of \$40,327. Improved interest had been shown by the people in its work. Assistance had been given to five State districts (Northwestern Kansas and Colorado, Tennessee, Western Iowa and Minnesota, Northern Missouri, and Northern Indiana for the Canada Mission); loans had been made to five meeting-houses, and nine meeting-houses had been provided for; two churches had been organized; and 158 persons received by baptism. During five years since the present missionary plan was adopted, \$20,000 had been received and expended by the committee in missionary and church erection work; 19 churches had been organized, 36 meeting-houses provided for, and 520 members received by baptism. A proposition to consolidate the missionary scheme by instituting one general work, of which each State district should be a department through its auxiliary committee, was deferred for a year, as was also the subject of providing for the training and appointment of missionaries. The conference refused to advise members that it would not consider it wrong for them to work and vote for local option; then, lest this action should be misunderstood as opposed to the temperance movement, it unanimously resolved to recommend that all the brethren "carefully maintain our position against the use or toleration of intoxicants, whether to manufacture, sell, or use as a beverage, and to the extent of our influence contribute our part to secure practical prohibition, but that we be advised against taking part in the public agitation of the subject." The preparation of a German edition of the journal of the meeting was directed. The use of tobacco by members was discountenanced. The former rules upon the subject were again insisted upon; members were advised to refrain as much as possible (as working men) from laboring in the tobacco business in any way; and not to trade or traffic in tobacco alone or in connection with other merchantable goods. The testimony of the Church was also reiterated against conforming to worldly fashions and customs in the matters of wearing riding habits, carrying gold watches, and participating in social plays at parties.

VI. Baptists in Canada.—The Baptist Convention of the maritime provinces (New Brunswick, Nova Scotia, and Prince Edward Island) includes, according to the statistical reports for 1889, 8 associations, with 384 churches, 202 ministers (in 1888), and 59,719 members, with 1,817 baptisms reported during the year.

According to the "American Baptist Year-Book," for 1889, the Baptists have in Ontario, Quebec, Manitoba, and the Northwest Territory, 15 associations, with 30 unassociated churches, 441 churches in all, 286 ministers in the two conventions of Canada, and 34,068 members. The

"Baptist Year-Book for Ontario, Quebec, and the Northwest Territories," for 1889, gives the number of members as 33,029; and of pupils in Sunday-schools as 23,549.

Convention of the Maritime Provinces.—The Baptist Convention of the Maritime Provinces met at Frederickton, N. B., Aug. 24. Mr. E. D. King was chosen president. The report from Acadia College represented that the faculty had been increased, and further additions were to be made to it. A theological professor was to be appointed in the next year. Twenty-five of the under-graduates had been engaged during the vacations in home-mission work. Associated with this institution are Horton Collegiate Academy and Acadia Seminary. The receipts of the Ministerial Relief and Aid Fund had been \$1,448, and the amount of its moneys was returned at \$4,887. The sum of \$810 had been expended in the relief of 23 persons, aged or infirm ministers or widows of ministers. A bequest was reported to the convention of \$10,000 for a ministers' annuity fund. The receipts of the Home Mission Board had been \$6,443. Sixty-seven missionaries had reported concerning their labors—including the organization of 2 churches and the reception of 320 members by baptism. The receipts of the Foreign Mission Board had been \$13,236. Two bequests—one of \$46,000 and one of about \$10,000—for this cause were acknowledged. The missions returned the present number of members at the three stations of Chicacole, Deodangagiri, and Binilipatam, in India, as 137. The committee on union with the Free Christian Baptists representing that the people of that denomination were not yet prepared to take action on the "basis of union" adopted by the joint committee of the two bodies, the matter of union was left in abeyance for the present, and a standing committee for conference on the subject was appointed. A declaration was made adverse to concessions to the Jesuits in Canada. It defined as the principles with which Baptists stand historically identified touching civil and religious rites—

That the state is a political corporation simply; that freedom of religious opinion and worship is a vested right of the individual conscience, and not a grant from the Legislature; that the Legislature may not prescribe any form of religious belief or worship simply as such, though for reasons of public morality, or for the safety and order of society, it may properly forbid acts done in the name of religion, as, for instance, polygamy with the Mormons, or the interference of ecclesiastics with the lawful authority of the state. We believe that nothing less than the thorough application of these principles throughout the entire Dominion will produce harmony and secure the welfare of the people of Canada; and we therefore, as citizens of Canada, are bound to support all wise and lawful efforts to secure the complete separation of Church and state in every province and territory of the Dominion.

The convention, holding that the prohibition of the liquor traffic would be "but the protection of the citizens' rights and the bestowment upon the greatest number of the greatest amount of good with the least possible evil," recommended that preference be given in the election of members of Parliament to persons who would vote for laws embodying that principle in full.

Convention of Ontario and Quebec.—The Baptist Home Missionary Society of Ontario and Quebec received for the year ending in October, 1888, \$16,104. It gave aid to about 130 churches, and about 650 baptisms were returned as among the fruits of the labors of the missionaries. The Woman's Home Missionary Society of Ontario returned \$4,311 as the amount of its receipts. The income of the Superannuated Ministers, Widows, and Orphans' Society had been \$2,980; and it gave aid to 29 persons. The Baptist Church Edifice Society returned the amount of its funds as \$6,978. It received \$1,442, and granted 3 out of 15 applications for loans. The receipts for the Grand Ligne Mission were \$9,889. It sustained 8 churches, with 234 members and 211 pupils. The value of its church buildings and of Feller Institute and real estate at Grand Ligne was returned as over \$53,000, all chapel property being free from debt. The income of the Foreign Missionary Society for the year ending in October, 1888, was \$19,201. The mission—among the Telugus in India—returned four stations, with 1,947 members of the church, and a seminary at Samulcotta with 70 students. A Home Missionary Society had been formed among the converts. Two Woman's Foreign Missionary Societies (of Ontario and of Eastern Ontario and Quebec) had received \$9,157. These societies co-operate in educational work, and by the employment of Bible women. Steps were taken in 1888 for the organization of McMaster University, with an endowment bequeathed for the purpose by the late Senator McMaster. The senate of the institution determined that the arts department should be established at Toronto, and that the efficiency of Woodstock College should be increased, and it be made an institution for young men who do not intend to pursue a university course, and for instruction in classics and modern languages. A gift of property was also made by Mrs. McMaster for the foundation of a ladies' college at Toronto as a department of the university, to be known as the "Moulton Ladies' College."

A bill was passed by the Dominion Parliament in the winter of 1888-'89, authorizing the association of the Baptist interests and enterprises of Ontario and Quebec in home and foreign missions, church erection, publication, and preachers' aid into a representative body to be known as "the Baptist Convention of Ontario and Quebec."

The meeting of the convention thus incorporated was held in Ottawa in October, 1889. Mr. D. E. Thomson was chosen president. The report of the governors of McMaster University was presented. Questions regarding the organization of the institution were discussed and referred back to the senate and board of governors for further deliberation. Among these questions was one respecting the appropriation of the \$14,500 a year specially designated by Senator McMaster as the smallest amount to be spent on the work of the theological college. The contributions for foreign missions had been \$20,116, and the accounts showed a surplus in the treasury of \$1,687. Six new missionaries had been sent out to the mission in India. The Home Mission Society had received \$17,950, and gave accounts of a successful year's work. The con-

vention undertook to raise \$3,000 a year for home missions in Manitoba, in aid of which an agent to receive contributions was appointed for each association. The Standard Publishing Company, whose interests had been passed by Senator McMaster to the Baptist organization, had declared and paid a dividend of 3 per cent. to the societies entitled by the founder's will to participate in its profits. On the subject of the relations of Church and state the convention resolved that—

Whereas, The historic belief of the Baptist Church has always been that Church and state should be separate, and that all citizens and denominations should be equal in every way before the law, and whereas the said principle is being violated in all ecclesiastical exemptions, whether in favor of the Baptists or of other denominations, in the continuance of the mediæval tithing system of the Roman Catholic denomination in Quebec, in the existence of separate schools supported out of public rates, in state provision for religious instruction in public schools, and in public grants for denominational purposes, as well as in other respects. . . . *Resolved*, That we hereby declare our conviction that the only permanent and sufficient remedy for these evils that are subversive of the principle of religious liberty and equality, and are therefore a hindrance in the development of our national life, is the absolute and final separation of Church and state, and a revision of our Constitution in harmony with the same.

The views of the convention were also declared on prison reform, Sunday observance, and the Jesuit Estates bill.

VII. Baptists in Great Britain.—The statistics of the Baptists in Great Britain, Ireland, and the Channel Islands, as given for 1888 in the "American Baptist Year-Book" foot up: Number of associations, 56; of churches, 2,770; of ministers, 1,865; of members, 299,505.

The annual meeting of the Baptist Union of Great Britain and Ireland was held in London, April 29. The Rev. J. T. Wigner presided. The report of the council showed that 20,000 church-members and 23,000 pupils in Sunday-schools had been added during the year, while about £60,000 had been expended on new chapels, £32,000 on chapel improvements, and £85,000 in removing or diminishing debt; and that the Union had received for all purposes, £21,452. It was represented in the opening address of the president that although 5 churches and 13 personal members had withdrawn from the Union during the year, 61 churches and 116 personal members had been received in the same time, and that between £12,000 and £13,000 had been distributed to pastors and widows, annuitants, and to pastors aided by the British and Irish Mission, Augmentation, and Educational funds. A minute was adopted declaring that the Union considered it desirable that the General Baptists and Particular Baptists should become one denomination and that their various societies should be amalgamated. Resolutions were passed in favor of settling international disputes by arbitration and disapproving those features in the Revised Education Code which were alleged to tend to confirm the position and prolong the existence of weak, inefficient, and ill-equipped schools.

The receipts of the Baptist Missionary Society were returned at £80,818, against £66,209 in 1887. More than 10,000 pounds, however, of the former sum had come in the shape of special

legacies and gifts for the China Famine Relief fund. A speaker at the anniversary meeting, replying to criticisms of missionary methods by Mr. Caines and to a call for self-denying missionaries, mentioned that for four years one of the missionaries of the society had returned three fourths of his salary in order that more men might be sent out; and that the Baptist missionaries in China during the famine had supported the native brethren out of their incomes, while they distributed the Relief fund of the society among the heathen.

The receipts of the Baptist Zenana Mission had been £9,641, and the expenditure £8,488, leaving a balance in hand of £1,152; but a permanent yearly increase of £600 was wanted to make the income equal to the expenditures.

The annual income of the Baptist Union Home Mission was returned at the autumnal meeting of the Union at £4,000, while £1,100 more were required in order to carry on the work in hand. Five hundred churches had been visited. An aggressive movement had been begun in London by the London Baptist Association.

The autumnal meeting of the Union was held in Birmingham, beginning Oct. 9. The Rev. J. T. Wigner presided and delivered a presidential address on "Christian Citizenship." At a missionary meeting, held on the first day, the speakers dwelt on the success of missions, and cited facts, particularly from the missions in India, contradictory to the allegations recently made in the public prints and discussions of the failure of missionary effort. Among the new missionaries about to go out to their fields, a number of young men were introduced who would live together and devote their time to personal intercourse with the natives, it being understood that they would remain unmarried while engaged in this work. A letter was approved, to be signed by the officers of the Union, in reply to the letter of the Archbishop of Canterbury transmitting the resolutions of the Lambeth Conference on "Home Reunion." Of the four articles suggested in those resolutions as forming a suitable basis on which negotiations could proceed, the letter said that as to the first—

[(a) The Holy Scriptures of the Old and New Testaments as "containing all things necessary to salvation," and as being the rule and ultimate standard of faith.] we are in full accord with your Grace. The supreme authority of the Holy Scripture in matters of religious faith and duty is a cardinal principle underlying our Church organization and individual life. The other three articles [(b) The Apostles' Creed as the baptismal symbol, and the Nicene Creed as the sufficient statement of the Christian faith. (c) The two sacraments ordained by Christ himself, baptism and the supper of the Lord, "ministered with unfailing use of Christ's words of institution, and of the elements ordained" by him. (d) The historic episcopate locally adapted in the methods of its administration to the "varying needs of the nations and peoples called of God into the unity of his Church." (See Encyclical Letter, pp. 88, 24, 25).] laid down in the encyclical letter contain terms so obviously susceptible of two or more interpretations that they do not seem to us to promise a profitable issue to any deliberations founded upon them. For instance, our churches hold that they have "the historic episcopate," as it is laid down in the New Testament, and they do not consider the diocesan episcopate of the Anglican communion to be in accordance with the New Testament law of Church government.

But our chief difficulty as Baptists in approaching the suggested conference arises from the fact that our churches hold and teach—

1. That the Christianity of the New Testament was essentially the introduction of a spiritual, personal, and non-sacerdotal religion.

2. That the New Testament law of Baptism requires a profession of faith in the Lord Jesus Christ as a prerequisite to the administration of the rite; or, as it is well expressed in the catechism of the Church of England in answer to the question 'What is required of persons to be baptized?' Repentance, whereby they forsake sin, and faith, whereby they steadfastly believe the promises of God,' and that the administration of baptism to infants, when, by reason of their tender age, they can not satisfy these conditions, is contrary to the teaching of Holy Scripture and to the practice of the primitive and apostolic Church.

3. That in subjection to the teaching of the Word of God, the internal government of each Christian Church should be conducted by the professed servants of the Saviour, and should be in no way controlled by the sovereign powers of the state. These principles—excepting our views on Christian baptism—we hold, as your Grace is fully aware, in common with other free churches in this country with whom we are not only united by the ties of brotherhood, but also by a common concern for the salvation and well-being of all men. Having laid before your Grace this frank statement of our position, we are the more anxious to acknowledge the spirit of devotedness to the welfare of our fellow-countrymen which we witness in many of the members of the Established Church. With all that tends to promote spiritual religion and social reformation we earnestly sympathize, and while we do not think the suggested conference would advance the special object of "home reunion" which your Grace has in view, we do regard the mere suggestion of such a conference as tending to bring about a more direct and closely knit federation of those consecrated labors in which all sections of Christ's Church are engaged. In our judgment, such co-operation would be a truer index of the growth and power of the spirit of Christian brotherhood than a comprehensive organization and a mere outward conformity.

Alterations were made in the rules regulating the Annuity fund, the British and Irish Home Mission, the Augmentation fund, and the Education fund, the effect of which in respect to home missions will be to exclude all reference to Ireland. The home missions there will in future be managed by a separate committee. A report was made by the council favorable to the amalgamation of the General and Particular Baptists. The General Baptist Association had replied favorably to the overtures on the subject, and most of the associations communicated with had approved the effort. The Union advised that the terms "General" and "Particular" as denominating Baptist churches, societies, or members, should be discontinued; that all institutions denominationally promoted should be designated by the term "Baptist" only; and that all Baptists duly qualified should be eligible to office in any Baptist institution. Commending to the consideration of all Christians the evils of indulgence in intoxicating drinks, the assembly expressed the conviction that the Church should lead in the conflict with the evil, and urged the adoption of such measures as should prove best suited to destroy it. Objection was made against the measure proposed in Parliament for the establishment and endowment of a Roman Catholic college in Ireland. While it acknowledged the right of Roman Catholics to

equality in university and collegiate advantages with members of the Episcopal Church, the Union suggested that such equality should be secured, not by concurrent endowment, but by making existing endowed institutions really national and altogether unsectarian.

BARNARD, FREDERICK AUGUSTUS PORTER, educator, born in Sheffield, Mass., May 5, 1809; died in New York city, April 27, 1889. He was the oldest son of Robert Foster Barnard (Gen. John G. Barnard was a younger son), a lawyer who was at one time a member of the Massachusetts Senate. His mother was a daughter of Dr. Joshua Porter, of Salisbury, Conn., and on both sides his ancestry was of English origin. He was first taught at home and then entered a grammar school in Sheffield conducted by Dr. Orville Dewey. When he was nine years old he was sent to Saratoga Springs, N. Y., where he entered the academy. In Saratoga he first saw a printing-office, and soon ac-



FREDERICK AUGUSTUS PORTER BARNARD.

quired a familiarity with that art. Many of the pages of the "Saratoga Sentinel" were voluntarily set up by him. After three years he went to Stockbridge, Mass., where he was prepared for college by Jared Curtis, and at this time acquired an interest in chemistry and electricity. He was graduated at Yale in 1828, standing second in his class of eighty-two members, and leading in pure mathematics and the exact sciences. On the Monday following the taking of his degree, he began his educational work as a teacher in the Hartford Grammar School, and continued there for two years. At this time he became a contributor to "The New England Review," edited by John G. Whittier, the poet, and he also for a short time had complete editorial control of that journal. His articles included poems, of which several were imitations of Hafiz and other Persian poets, and, according to Mr. Whittier, were "full of grace and rhythmic sweetness." He returned to Yale in the autumn of 1830, and became tutor of mathematics. His success was such that it was proposed to divide the chair of Mathematics as soon as possible, giving him the department of pure mathematics. While in Hartford he had studied law under Jonathan

Edwards, and his own inclination was toward political life, but an unfortunate illness which left him with impaired hearing, led to his relinquishing this project. As the ailment was hereditary in his family, he became unduly sensitive on the subject, and therefore readily accepted an appointment in May, 1831, at the American Asylum for the Deaf and Dumb in Hartford, even seeking a release from his college duties before the close of the term. It was not until after he was fifty years of age that his deafness became marked. He was called in 1832 to the Institution for Deaf and Dumb in New York city, and this place he held for five years, during which he prepared the annual reports of the institution, invented new methods of teaching, and also wrote magazine articles relating to deaf-mute instruction. In 1837 he was chosen to the chair of Mathematics and Natural Philosophy in the University of Alabama, where he remained until 1848, when he was transferred to the charge of Chemistry and Natural History, which he held until 1854. Prof. Barnard was at this time said to be "the best at whatever he attempted to do; he could turn the best sonnet, write the best love-story, take the best daguerreotype picture, charm the most women, catch the most trout, and calculate the most undoubted almanac." His versatility was remarkable. He edited a weekly newspaper at Tuscaloosa, and for a time had charge of two papers of opposite political opinions. In 1846 he was appointed by the Governor of Alabama as astronomer on the part of that State to assist in determining the boundary line between Alabama and Florida; and as the representative of the latter State did not qualify, Prof. Barnard was employed by both States. His report, submitted to the Legislatures of the two States, was accepted as conclusive, and settled the long-pending controversy. On July 4, 1851, he delivered an oration before the citizens of Tuscaloosa on the questions of the time, beginning with: "No just cause for a dissolution of the Union in anything which has hitherto happened; but the Union is the only security for Southern rights." Of this address it is said: "It enraged his colleagues greatly, but it produced a decided impression in the community, and after that day people did not always hold their breath when political topics were mentioned in the streets of Tuscaloosa." He studied theology, and was admitted to holy orders in the Protestant Episcopal Church in 1854. This step he took on the advice of friends, and he was persuaded that thereby his influence as an educator would be greater, but he never sought for nor held a parish. In 1854 he was invited to fill the chair of Mathematics, Natural Philosophy, and Civil Engineering in the University of Mississippi, of which institution he became president in 1856, and chancellor in 1858. This office he held until 1861, going North in 1860 to serve on the astronomical expedition sent by the United States Coast Survey to Labrador to witness the total eclipse of the sun, and returning to his post on the completion of his work. Soon after the beginning of the civil war, the university closed its doors, and President Barnard was relieved of his charge. Efforts were made to induce him to take office under the Confederate Government, but, being opposed to secession, he refused. He

was denied a pass through the lines, and compelled to remain in Norfolk, Va., until that place was captured in 1862 by the United States troops. President Barnard then went to Washington, where he was engaged in continuing the reductions of Lieut. James M. Gilliss's observations of the stars of the Southern Hemisphere, and in 1863 had charge of their publication. He also became connected with the United States Coast Survey, and was made director of the map and chart department. His long residence in the South proved of great service in the preparation of maps used by the national armies. When the chair of Physics in Columbia College, New York city, became vacant, his name was suggested for that place, but the resignation of Charles King from the presidency of the college led the trustees to call Prest. Barnard, in May, 1864, to that post. This office he held until the close of the collegiate year in 1888, when failing health induced him to place his resignation in the hands of the trustees, which was accepted, "to take effect on the appointment of his successor." Thus he continued president of Columbia College until his death. At the time of his appointment the college had but recently acquired its present site. Although endowed with abundant means, it was conservative to the last degree. Its law and medical departments were separate and remote from the college proper, while the School of Mines was struggling for existence in the basement of one of the buildings. By his learning and acuteness, his executive tact, his mastery of details, his insight into character, and his unfailing courtesy, President Barnard was well fitted for the place to which he was called. His keen judgment led him to see the future aright, and he bent his energies toward the building of a great university. The School of Mines received at first his chief thought, and at present, with its departments of architecture, chemistry, geology, metallurgy, and civil, electrical, mechanical, mining, and sanitary engineering, with its laboratories and museums unequaled in the country, it is perhaps one of the foremost technical schools in the United States. The School of Political Science, teaching the principles of government, commerce, and finance, claimed his attention later. After that the School of Library Economy was developed, and finally a department for the education of women, bearing the name of Barnard College, has been thrown open. The building of the School of Mines, Hamilton Hall, and the Library Building, in which the law department is placed, also the group of buildings forming the medical departments, was accomplished during his administration. Prof. John S. Newberry says: "Every one of the steps of progress enumerated above was either conceived or earnestly advocated by him, and owed its achievement to his support. He was not only a participant, but a leader in every forward movement." The library contained 15,332 volumes in 1865 and 94,000 in 1889, while the number of students in 1864 was 600 and in 1888 was over 1,800. During his residence in the South, President Barnard in many ways was actively engaged in promoting public education, encouraging and assisting in all departments of scientific research and literary culture. In his honor, the University of

Alabama has called one of its new buildings Barnard Hall. He was officially connected with the World's Fair held in New York city in 1853. In 1866 he was appointed one of the commissioners to the World's Fair held in Paris in 1867, and on his return he prepared an extended description of the "Machinery, Processes, and Products of the Industrial Arts and Apparatus of the Exact Sciences," which was published in the Government reports. At the Centennial Exhibition held in Philadelphia in 1876 he was one of the judges on instruments of precision, and in 1878 he was assistant commissioner-general at the World's Fair held in Paris, when the decoration of the Legion of Honor, with the rank of officer, was conferred on him by the French ministry. He also received other foreign decorations and gold medals in recognition of his scientific work. The degree of LL. D. was given him by Jefferson College, Mississippi, in 1855, and by Yale in 1859. In 1861 the University of Mississippi conferred on him the degree of S. T. D., and in 1872 he received that of L. H. D. from the Regents of the University of the State of New York. Kings College, Canada, made him a D. C. L. in 1887, and St. John's College, Annapolis, bestowed on him the degree of Ph. D. in 1888. President Barnard's name was on the rolls of many scientific societies, both in this country and abroad. He was chosen president of the American Association for the Advancement of Science in 1860, but, owing to the civil war, did not assume the office until 1866, and at the Chicago meeting in 1868 he delivered his address, when he discussed the doctrine of the materialistic school of modern physics, which regards mental and physical forces as reciprocally convertible. He was one of the original members of the National Academy of Sciences, chairman of its physical section in 1872, and its foreign secretary in 1874-'80. To its proceedings he contributed seven papers, and he was an active member of several of its earlier commissions that were charged with special work for the Government. In 1872 he was president of the American Institute in New York city, and in 1873 became first president of the American Metrological Society, which place he held until his death. He was often called upon to preside at public meetings, and delivered a great number of addresses. President Barnard was active in the support of every good cause—religious, educational, scientific, and artistic—and was regarded as a co-worker by all those who were devoted to the higher purposes of life. He was the senior editor of "Johnson's Cyclopædia," for which work he wrote numerous scientific and literary articles. His contributions to scientific literature included papers on astronomy, electricity, engineering, hygiene, mathematics, metrology, photography, and physics. He wrote for the "American Journal of Education" from its beginning, and from 1838 was a contributor to the "American Journal of Science." In addition to numerous reports on educational matters presented to the trustees of Columbia College, he published "The School Arithmetic" (1829); "A Treatise on Arithmetic" (1830); "Analytic Grammar with Symbolic Illustrations" (1836); "Letters on College Government" (1854); "Report on Collegiate Education" (1854);

"Art Culture" (1854); "History of the American Coast Survey" (1857); "University Education" (1858); "Undulatory Theory of Light" (a series of lectures delivered before the Smithsonian Institution) (1862); and "Metric System of Weights and Measures" (1871). His entire estate was bequeathed to Columbia College, and on the death of his wife (who receives the income during her lifetime), \$10,000 is to be appropriated for the foundation of a fellowship to be known as the Barnard Fellowship for encouraging Scientific Research, the holder of which must be an alumnus of the School of Mines or School of Arts. The remainder of the estate is to be known as the Barnard fund for the increase of the library, and works pertaining to physical or astronomical science are to be purchased in preference to others. He also provided that a medal, to cost not less than \$200, be prepared, to be known as the Barnard Medal for Meritorious Service to Science. A copy of this medal is to be presented at the end of every five years to the person who, during that period, shall have made such discovery in physical or astronomical science, or such novel application of science to purposes beneficial to the human race, as shall be deemed the most worthy of such honor.

BELGIUM, a monarchy in western Europe. It seceded from the Netherlands and was constituted an independent state in 1830. By the treaty of London, signed on April 19, 1839, the kingdom was recognized and its neutrality and inviolability guaranteed by the powers of Europe. Leopold II, son of the first King, came to the throne in 1865. The Chamber of Representatives is composed of 138 members, elected for four years, one half retiring every two years. The Senate contains half as many members as the Lower House, renewed by quadrennial elections of half the members. The franchise is limited by a tax-paying qualification to about one thirteenth of the adult male population. The ministers are individually and collectively responsible to the Chambers. The present ministry, constituted in 1884, is composed of the following members: President of the Council and Minister of Finance, A. Beernaert; Minister of Justice, J. Lejeune; Minister of the Interior and of Public Instruction, J. Devolder; Minister of War, Maj.-Gen. C. Pontus; Minister of Agriculture, Industry, and Public Works, L. Debruyne; Minister of Railways, Posts, and Telegraphs, J. H. P. Vandenpeereboom; Minister of Foreign Affairs, Prince de Chimay.

Area and Population.—The area of the provinces of Belgium and their population as estimated at the close of 1887, compared with the returns of the census of Dec. 31, 1880, are shown in the following table:

PROVINCES.	Square miles.	Population in 1880.	Population in 1887.
Antwerp	1,093	577,232	664,480
Brabant	1,268	985,274	1,091,083
West Flanders	1,249	691,764	782,317
East Flanders	1,158	881,816	939,748
Hainaut	1,487	977,565	1,041,719
Liège	1,117	663,735	728,368
Limbourg	931	210,851	222,489
Luxembourg	1,706	209,118	217,447
Namur	1,414	322,654	337,092
Total	11,373	5,520,009	5,974,743

The male population in 1887 was 2,983,093, and the female population 2,991,650. The number of marriages in 1887 was 42,491; of births, 175,466; of deaths, 115,296; surplus of births over deaths, 60,170. The percentage of illegitimate births was 9.3. The population of Brussels, with its suburbs, at the beginning of 1888, was 458,939; of Antwerp, 210,534; of Ghent, 147,912; of Liège, 140,261. The population has for many years received an increment from immigration, the number of immigrants in 1887 having been 19,286, or 1,758 in excess of the emigrants; but in 1888 as many as 40,000 persons emigrated. Of late years emigration has been directed mainly to the Argentine Republic and to Brazil. Unfavorable accounts of the condition of the Belgian emigrants in those countries having been received, the Government sent agents in 1889 to Canada and to the Transvaal to examine their advantages or disadvantages as a field for Belgian emigration. The attractions of the South African Republic, especially for the surplus Flemish population, were vaunted by the Transvaal Minister of Public Instruction, M. Du Toit, during a visit to Belgium in September, 1889.

Commerce and Industry.—The total value of the special imports in 1887 was 1,431,930,000 francs; of the exports, 1,240,624,000 francs. The principal imports were cereals, of the value of 223,487,000 francs; textile materials, 200,055,000 francs; vegetable foods, 78,013,000 francs; hides and skins, 75,218,000 francs; minerals, 61,596,000 francs; living animals, 59,710,000 francs; timber, 59,357,000 francs; chemicals, 55,284,000 francs; tissues, 53,231,000 francs; resins, 51,558,000 francs; coffee, 39,058,000 francs; metals, 33,919,000 francs; butter and eggs, 29,987,000 francs; yarns, 28,103,000 francs; meat, 25,799,000 francs. The largest exports were yarns, of the value of 134,222,000 francs; textile materials, 84,542,000 francs; coal, 71,972,000 francs; machinery, 68,255,000 francs; stone, 67,502,000 francs; tissues, 66,493,000 francs; cereals, 59,483,000 francs; hides and leather, 58,316,000 francs; iron, 57,456,000 francs; glass, 54,739,000 francs; sugar, 38,129,000 francs; live animals, 29,869,000 francs; paper, 24,574,000 francs; chemicals, 22,800,000 francs; meat, 22,110,000 francs; resinous substances, 16,915,000 francs; steel, 13,864,000 francs; arms, 11,538,000 francs. The chief commercial countries furnished imports and received Belgian exports of the following amounts in 1887, the values being given in francs:

COUNTRIES.	Imports.	Exports.
France	282,805,844	835,258,187
Great Britain	187,791,078	240,425,238
Netherlands	198,736,073	167,753,788
Germany	148,831,905	197,806,547
United States	164,878,288	49,343,329
Russia	95,867,695	6,172,627
Argentine Republic	68,805,005	18,006,615
Italy	16,235,012	41,586,121

The product of the coal mines in 1886 was 17,285,543 metric tons, of which one fourth was exported, the bulk of it going to France. There were 754,481 tons of pig-iron produced in 1887. The product of manufactured iron in 1887 was 532,103 tons. In 1886 it was 470,255 tons, and

in that year 301,816 tons of steel, valued at 27,677,000 francs, were manufactured. The cultivable area is 2,704,957 hectares out of a total of 2,945,715 hectares. The area under cultivation is 1,983,570 hectares; under forest, 489,423 hectares; uncultivated, 231,964 hectares. The soil is divided into 910,396 separate properties, more than 710,000 of which are less than 2 hectares. The imports of cereals in 1886 were 1,095,877 metric tons, and the exports 304,276 tons. The export of beet sugar in 1885 was 98,390 tons.

Navigation.—The merchant navy on Jan. 1, 1888, comprised 65 vessels, of 86,391 tons, 55 being steamers, of 80,891 tons. The deep-sea fisheries employed 344 vessels of 12,191 tons. The number of vessels entered at the ports of Belgium during 1887 was 6,747; the tonnage, 4,571,705, more than half being British. The number cleared was 6,780; the tonnage, 4,584,297.

Railroads, Posts, and Telegraphs.—On Jan. 1, 1888, the railroad lines belonging to the state had a total length of 3,195 kilometres. The length of lines belonging to joint-stock companies was 1,246 kilometres. The gross receipts from state lines in 1886 amounted to 124,057,764 francs, while the expenses were 66,541,005 francs. The receipts of the companies were 36,782,204 francs, and the expenses 18,138,562 francs. The capital expenditure of the Government up to Jan. 1, 1887, was 1,285,068,000 francs.

The number of private letters carried in the mails for the year 1887 was 86,831,068; official letters, 14,816,465; postal cards, 25,407,239; printed circulars, 56,665,000; newspapers, 94,024,000. The revenue of the post-office in 1887 was 15,253,560 francs, and the expenditure 8,643,167 francs.

The state telegraph lines at the beginning of 1888 had a total length of 3,900 miles, with 18,700 miles of wire. The number of dispatches in 1887 was 6,811,534. The receipts for the year were 2,916,978 francs, and the expenses 3,734,917 francs.

The Army.—Belgium has conscription laws making every able-bodied citizen liable to serve eight years from the age of nineteen, yet allowing substitution. Actual service is not required for more than one third of the legal period. A commission, with General D'Oultremont at its head, has worked out a project of military reform, based on the German system of universal service. This project is stubbornly resisted by the extreme wing of the dominant Clerical party. The standing army, as provided for in the budget of 1889, has a total strength of 47,570 officers and men, the infantry numbering 30,778, the cavalry 6,048, the artillery 8,371, the engineers 1,479, the administrative corps 894. In addition the general staff numbers 474 officers and men, and there is a gendarmerie of 2,449 men. The number of horses of the peace establishment is 7,200, not including 1,636 horses of the gendarmerie. The guns number 200. The war strength of the army is 103,860 men, 13,800 horses, and 240 guns. Besides the standing army there is the volunteer force called the Garde Civique, numbering 42,706 men on March 31, 1888. The kingdom has a central citadel at Antwerp and other arsenals at Liège, Huy, and Namur. In 1888 the fortification of the valley of the Meuse was begun. The Belgian Government, like other European gov-

ernments, has long sought for a repeating rifle. The inventors of all known systems were invited to a competitive trial, which took place at Beverloo in January, 1889. Eight different models were tested, all of which are said to have shown themselves superior to the French Lebel rifle. After the preliminary trials the competition was narrowed down to the weapons of Casper Engh, Mauser, and Mannlicher. The Austrian Mannlicher system was decided to be the best, but the inventor of the Nagant rifle and other Belgian inventors asked for a second trial after they had made improvements that were suggested by the results of the contest. In May the final trials took place, on the same ground, under the direction of Lieutenant-General van der Smissen.

Finance.—The revenue for 1888 was estimated at 326,405,000 francs, of which 319,365,000 francs are derived from ordinary sources. The ordinary expenditures were estimated to amount to 307,743,000 francs, and special expenditures were estimated at 52,101,000 francs, making the total of expenditures 359,853,000 francs. The budget for 1889 reckons the total ordinary revenue at 322,345,702 francs, of which 24,028,000 francs are derived from property taxes, 19,425,000 francs from personal taxes, 6,580,000 francs from trade licenses, 25,567,807 francs from customs, 40,602,718 francs from excise, 19,710,000 francs from succession duties, 24,060,000 francs from registration duties, 5,802,000 francs from stamps, 120,500,000 francs from railroads, 5,278,800 francs from telegraphs, 9,686,000 francs from the post-office, and the remainder from mines, funds, navigation dues, domains and forests, and other sources. The total ordinary expenditure is estimated at 313,137,948 francs, of which interest on the public debt consumes 96,619,397 francs, the civil list and dotations 4,674,665 francs, the Ministry of Justice 15,904,733 francs, the Ministry of Foreign Affairs 2,385,120 francs, the Ministry of the Interior and Public Instruction 22,025,984 francs, the Ministry of Public Works 16,843,941 francs, the Ministry of Railways, Posts, and Telegraphs 87,381,328 francs, the Ministry of War 45,968,100 francs, the Ministry of Finance 15,578,180 francs, and the gendarmerie 4,100,000 francs, the remainder, of 1,656,500 francs, representing repayments.

The public debt in 1889 amounted to 1,915,846,574 francs, not including 30,106,000 francs to be paid annually in terminable annuities. The debt was raised mainly for public works, and its payment is provided for by a sinking fund. The revenue in recent years shows a steady growth, although the coffee and sugar imposts have been lowered and other taxes, yielding 6,000,000 francs per annum, have been remitted. A small deficit in the ordinary budget was formerly the rule. In 1884, when the present ministry came into office, there was a deficit of 19,000,000 francs to carry over. Since then, although the revenue has increased, the ordinary expenditure has not been augmented, so that in 1889 a surplus of 12,000,000 francs is in prospect, and in the estimates for 1890 the Minister of Finance reckons on one of 16,000,000 francs.

Legislation.—The Moderate Conservative ministry that was called into office to reverse the policy of secular education pursued by the Liberals is supported by a Clerical majority so large

that it is unmanageable. At the dictation of the Ultramontanes, the ministers have deferred the reform of the military service, and on the question of meat duties they also sacrificed their convictions. When, however, Woeste, the leader of the Clericals in the Chamber, introduced a bill in February for the repayment of contributions to the pension fund retained from the salaries of teachers who resigned for reasons of conscience after the passage of the Liberal school law in 1879, the ministers took a firm stand against the proposition. All those teachers have now places in the conventual schools, and receive better pay than formerly. Woeste persisted in his proposal, which was sure of the approval of the committee and of the House, in spite of its condemnation by the Minister of Education, and only withdrew the bill when the ministers declared they would make it a Cabinet question.

The labor troubles that have occurred in recent years spurred the Government to an inquiry into the condition of the working classes that has borne fruit in the shape of some ameliorative legislation. A bill for improving the dwellings of the poor was passed in the session of 1889. Committees are to be instituted all over the country, of which the members are nominated in part by the Government and in part by the provincial councils, for promoting the construction of workingmen's dwellings and managing their sale by annual installments. They are expected to examine the condition of the houses of the poor, and can recommend the expropriation of unsanitary quarters and receive donations from individuals, subsidies from the authorities, and loans from the Royal Savings Bank secured on life-insurance policies to aid in providing work people with homes owned by themselves. Provinces, communes, and charitable institutions are likewise authorized to accept donations for the erection of workingmen's dwellings. The committees will grant prizes for cleanliness, order, and economy. Workingmen's houses are exempted from taxation if occupied by owners possessing no other property, and when private companies undertake the construction of improved dwellings of this character they are released from the payment of various taxes. A recent law establishing courts of arbitration to decide disputes between employers and workmen is said to be of small advantage to the latter as it is simply permissive, cases having occurred in which employers, after appealing to the court, refused to be bound by its verdict.

Anarchist Trial.—Alfred Defuisseaux, a leader of the Belgian Socialists, became a fugitive from the officers of the law in 1886, when he evaded prosecution for the authorship of a revolutionary pamphlet called the "People's Catechism." The Socialists expelled him from their party on account of his subversive aims, but he has continued to guide the party of action from his retreat near Paris, and was one of the chief instigators of the miners' and glass-blowers' strike in 1887. The plan of action is to arrange a universal strike, and by the simultaneous stoppage of all production to compel the ruling class to grant the demands of the laborers. In August, 1887, his adherents, led by his nephew Georges Defuisseaux, organized a Social-Republican party in Mons, and plotted a labor revolt that should

take place in conjunction with an uprising in France, or anterior to one, with the assistance of French Anarchists. Another orator, named Rouhette, who surpassed young Defuisseaux in inflammatory talk, was the author of the more revolutionary plans. In November, 1888, the leaders issued a circular couched in seditious language, calling a party convention at Châtelet, near Charleroi, for Dec. 2. When the convention assembled, all present took an oath of secrecy. The meeting chose for its president Laloi, the most violent of the agitators. On the motion of Georges Defuisseaux, a general strike was approved by a vote of 52 against 17. Laloi and André were in communication with the elder Defuisseaux, who urged them to arrange for the strike to take place not later than the middle of January, 1889. Conferences were held in the house of Alfred Defuisseaux at Bondy, near Paris, at the suggestion of Laloi, who there proposed a scheme of revolutionary action in connection with the general strike, which Defuisseaux thought was in itself sufficient to accomplish the social revolution. According to Laloi's plan, the workingmen in Belgium were to be supplied with arms from France, and Belgian deserters and refugees were to be armed and collected at the border, ready to march into Belgium. After the strike, which should begin simultaneously everywhere at the signal of chalk marks on the houses, four columns of armed revolutionists were to march on Brussels from Liège, Charleroi, Seraing, and Borinage, while disturbances in the industrial towns impelled the Government to denude the capital of troops. If possible, a frontier difficulty with Germany should be created for the purpose of drawing away troops. In December and January meetings were held almost nightly in darkness so that detectives might not be able to distinguish the countenances of those present. At these meetings dynamite bombs were distributed, and for weeks the inhabitants of the province of Hainaut were alarmed by constant explosions. The chief instigator of the dynamite outrages was a man named Pourbaix, who employed a young miner named Ledoux and others to give out the explosives and to pay money for firing them off.

On Jan. 10, about two weeks before the date set for the contemplated strike, the police arrested the ringleaders. An indictment was drawn up by the state prosecutor against twenty-seven persons, who were accused of having planned and partly carried out a plot against the security of the state. The trial began on May 6 in the Hainaut criminal court at Mons. The principal persons indicted were Alfred Defuisseaux, who remained away, his nephew Georges, the brothers Paul and Hector Conreur, Laloi, Maroille, Mignon, and Rouhette. Of the twenty-seven persons summoned to answer to the charge of high treason, twenty-two faced their accusers at the bar. Rouhette and one or two others fled, and the rest were already refugees. Paul Janson and Edmond Picard, the leading advocates of Brussels, defended the prisoners. The evidence for the prosecution was furnished chiefly by Pourbaix, who was detained as a witness. About the time when the trial began, ex-Deputy Léon Defuisseaux, a brother of Alfred, published a pamphlet in which he

charged the Government with having incited, through *agents provocateurs*, all the treasonable plotting that had taken place. These revelations were proved to be true. Laloi, the plotter of an armed insurrection, by the testimony of a high police official, was proved to have been in constant communication with Devolders, the Minister of the Interior, and with the Minister-President, Beernaert. His associate in seditious conspiracies, Rouhette, who rivaled him in incendiary harangues and incitement to violence, was supposed to be another police spy. Pourbaix, the instigator of the dynamite outrages, was certainly one, and so was André. Defuisseaux and his associates denied that they had planned insurrection or violence of any sort or knew of any plans except that of a general strike. Evidence elicited from the police showed that Pourbaix was the author of a revolutionary manifesto published in May, 1887, that led to a miners' strike and tumults in Hainaut and Borinage, and that before issuing it he had submitted it to the approval of Ministers Devolder and Beernaert, who afterward permitted Georges Defuisseaux and Hector Conreur to be arrested and detained for months in jail on suspicion of having written and sent out the same document. The startling disclosures of the trial virtually reversed the positions of accusers and accused, and stigmatized the ministers at the head of the Government as greater culprits than the prisoners in the dock. The prosecution withdrew all charges in relation to five of the prisoners. The jury acquitted the others of the intention to change the form of government, of inciting to civil war or devastation, of conspiracy, and of causing dynamite conspiracies. Three were convicted of inciting to the commission of crimes, and these were the police spies. All the others were acquitted.

The Government sought to cast all the odium on the Administration of Public Safety, as the state police department is called, but the chief of this department, Gautier de Rasse, averred that he had sought to dissuade the Government from prosecuting, as there was no evidence of a treasonable conspiracy. The Minister of Justice, Lejeune, took upon himself the entire responsibility. The Liberals, however, insisted on having the explanations of Beernaert and Devolder; but they evaded the question, and on a vote of want of confidence were sustained by a strict party vote of seventy-eight against thirty-two. Thousands gathered about the Parliament house and greeted them with hissing and denunciations as they came out. Paul Janson, who made a stirring argument in defense of the accused Socialists, was shortly afterward elected to the Chamber of Representatives from Brussels by a large majority over the Clerical candidate. Letters stolen from the archives of the Belgian police department and published in the "*Nouvelle Revue*" of Madame Adam in Paris tended to show that an understanding had existed with the German Government to provoke anarchistic attempts and adopt an anti-Socialist law.

The Flemish Movement.—Although the Flemings form the majority of the population, French has hitherto been the official and legal language of the country. Consequently it became the language of business and of social intercourse, and Low Dutch was neglected and

reduced to the position of a *patois* until the recent literary and national revival. Now the Flemish people, relying on the favor of the party in power, expect to raise their language to a perfect equality with the French. Coremans, who represents Antwerp in the Chamber, has carried through an act directing courts of justice to conduct their proceedings in Flemish at the request of a prisoner or litigant. The demands of the Flemings embrace the following points; 1. Low Dutch shall be the official language of state, provincial, and communal authorities in the provinces where all the people use it as their mother tongue, i. e., in East and West Flanders, Antwerp, and Limbourg, unless citizens ask to confer in French, while in Brabant, where the population is mixed, either language can be employed, and in the central bureaus of the Government at Brussels both languages shall stand on an equal footing and officials must know enough Flemish to carry on business with citizens and local administrations in that language. 2. In the administration of justice Low Dutch must be the language of the courts in examinations, preliminary proceedings, public trial, and decisions, unless an accused person or a suitor wishes to have French used. In the Court of Cassation parties can choose to have a case tried in either language. 3. Low Dutch shall be the language of instruction in all grades of schools and in all branches of study, except French, throughout Flemish Belgium. 4. The army should be organized territorially; officers and surgeons should be required to know Low Dutch; and in courts martial the accused should be allowed to choose the language to be employed. 5. The civil guard and the gendarmerie shall use Low Dutch in the Flemish provinces. 6. Low Dutch shall be the exclusive language in the administration of marine affairs, since French is a foreign tongue to both officers and seamen. 7. Diplomats and consular agents must be familiar with the language of the main part of the Belgian people. The agitators ask for the establishment of a Flemish university at Antwerp. Although the Clericals are anxious to please the Flemings, it will be almost impossible to make Low Dutch the juridical language of northern Belgium, because the Code Napoléon has never been translated into Flemish, and the Walloon members of Parliament can not intelligently sanction a translation that they would have to vote paragraph by paragraph.

BIBLE SOCIETIES. I. American Bible Society.—The seventy-third annual meeting of the American Bible Society was held in New York, May 9th. Hon. Enoch L. Fancher presided. The entire cash receipts of the society during the year for general purposes had been \$499,823, besides which \$1,347 had been received to be permanently invested. The expenditures had been \$555,989. The excess of \$56,166 over the receipts had been provided for, in part by loan and in part by the sale of available securities. The whole amount of invested trust funds was \$358,497, the income from which had amounted to \$13,671. Certain other funds, the par value of which was \$153,631, representing the unexpended remainders of some large legacies, were still available for the charitable uses of the society. The interest received from these invest-

ments had amounted to \$11,371. The property known as the Bible House, besides furnishing full accommodation for the operations of the society, yielded \$33,325 of rentals. The additions to the society's library included books representing recent progress in preparing and circulating the Scriptures in connection with great missionary movements. In the department of translations and revisions, progress was reported in versions in Ponape, Gilbert Islands, Muskokee, Syriac, ancient Armenian, easy Wenli (Chinese), Telugu, and Spanish. An experiment was contemplated of circulating a few copies in manuscript of one of the gospels in Kurdish, to determine whether the Kurds can be reached in this way, and also to ascertain what style of character will be most suitable to the purpose. The whole number of issues for the year, at home and in foreign lands, was 1,440,450 copies, of which 434,681 were published in foreign lands. In addition to the last number, 75,101 copies were sent abroad from the Bible House. The places at which copies were printed abroad were Constantinople, Beirut, Shanghai, Foochow, Bangkok, Yokohama, Bremen, and Lodiana. The importance of the society's work in foreign lands is insisted on in the report. The disbursements in this department had amounted to \$161,440. The anticipation that the general resupply of the United States would be completed during the year had not been fulfilled; but considerable remained to be done in certain districts. One hundred and forty-four colporteurs had been employed, with 116 paid agents engaged by auxiliary societies. The combined results of the work of the colporteurs and auxiliaries are summarized: Families visited, 567,016; found without the Scriptures, 66,951; supplied, 46,253; individuals supplied in addition, 27,993.

II. British and Foreign Bible Society.—The eighty-fifth annual meeting of the British and Foreign Bible Society was held in London, May 1, the Earl of Harrowby presiding. The total receipts for the year had been £212,655, and the disbursements £226,164. About 3,700,000 copies of the Bible and Testament and parts had been put in distribution. This was about five hundred thousand less than the number distributed in 1887, but the decrease was accounted for by the natural subsidence from the extraordinarily energetic circulation during the Royal Jubilee. Most of the reports from the countries in which the society pursues its operations gave evidence of widening interest in it, and of deeper devotion to its work. It was hoped that the society would soon be able to withdraw from some countries—Germany, for instance—and allow the people to carry on their own work.

BOLIVIA, a republic of South America. (For details relating to area, territorial divisions, population etc., see "Annual Cyclopædia" for 1888 and 1886.)

Government.—The President of the republic is Don Aniceto Arce, whose term of office will expire on Aug. 1, 1892. His Cabinet is composed of the following ministers: Foreign Affairs, Finances, and Interior, Don Telmo Ichazo; War, Gen. Cabrera. The Bolivian Minister at Washington and Delegate to the Congress of American Nations is Don Juan F. Velarde. The Bolivian Consul-General at New York is Don

Melchor Obarris. The American Minister at La Paz is Samuel S. Carlisle.

Army.—The regular army is composed of 8 generals, 359 superior and 654 subaltern officers, and 2,000 enlisted men. There is besides a National Guard, in which all citizens capable of bearing arms are enrolled.

Finances.—The foreign debt of Bolivia amounts to \$8,579,625, and the home debt to \$10,000,000. The Government is in hopes of making a compromise with holders of the latter at fifty cents on the dollar. Congress authorized the Executive to open negotiations in London for a £2,000,000 loan, the proceeds of which are to be applied as follows:

1. To the conversion of the foreign debt acknowledged by the state in the treaty with Chili of April 4, 1884;
2. To the payment of all other external indebtedness;
3. To the payment of balances due the National Bank and the Bank of Potosi;
4. To the payment of interest on that portion of the home debt recognized by a special law. Any balance there may be is to be spent on public works.

Treaties.—The treaty fixing the boundary line between Bolivia and the Argentine Republic has been ratified. The boundary dispute with Paraguay is in a fair way of being settled. As for the treaty of commerce and navigation with Brazil, there were still some slight differences to be overcome, and, so soon as these shall have been disposed of, Bolivia is ready to ratify the treaty.

Railroads.—The railway contractor J. W. Firth returned to La Paz from a trip to Europe in the autumn of 1889, having secured from the Bolivian Government certain concessions, under the provisions of which he intends extending the Arica-Taena line to La Paz and Oruro *via* Corocoro. This line will establish communication between a rich mineral region and the outlets of Taena and Arica. From Corocoro a branch is to be built to Puno in Peru, which in its turn is in communication by rail with Mollendo, the Peruvian port, and with Bolivia through navigation on Lake Titicaca. This ramification, together with the Antofagasta-Oruro line, will procure Bolivia great commercial facilities, which are all the more welcome as she does not possess a seaport. Negotiations are in progress with a powerful English syndicate for the purpose of giving Bolivia direct communication by rail with several of the neighboring republics and Brazil. In May, W. H. Christy applied for a concession to build a railroad from Sotolaya to the Ancora district, in the Department of La Paz, at the same time petitioning the Government to declare Sotolaya a port of entry. Simultaneously the explorer Don Arturo Tovar arrived from Europe, for the purpose of obtaining a concession to build a railroad between Formosa and Caiz, and deepen the Pilcomayo river. He is backed by a syndicate of French capitalists.

The Chilean Tariff.—Dating from Jan. 1, 1889, the Chilean tariff went into operation in Bolivia. Since the import duties were raised at Arica in 1888, a great portion of the goods intended for Bolivia have gone *via* the Peruvian port of Mollendo, where the Bolivian Government had a custom-house for the dispatch of merchandise inland *via* Lake Titicaca, and where

such goods paid a lower rate of duty than at Arica. The duty collected at the Bolivian Custom House at Mollendo did not exceed \$155,731 in 1886; in 1888, the revenue derived from that source reached \$744,180.

Silver Mines.—Bolivia, next to the United States and Mexico, is the most important silver-producing country, the average annual product being \$20,000,000. The celebrated Huanchaca mine is the most productive in the country. It usually declares a dividend of £4 per share every month, and in June, 1889, the company declared an extra dividend of £40 per share, in consequence of the exceptionally large output since the beginning of the year. Chilian capitalists are largely interested in this mine, but the largest shareholder of the company is the President of the Bolivian republic himself. The company has nearly finished the railroad from Antofagasta to its mine; its completion will do away with the transport of ore and silver on mules' backs. The Londres mine was first worked by the Spaniards three hundred years ago. About thirty years ago it came into the possession of English capitalists, who made large sums from it. But the officers of the English company began to steal the ore, and after a while the stockholders refused to continue the work. Finally the English capitalists abandoned it altogether, and the mine became flooded. W. H. Christy, of Boston, secured the mine of the Bolivian Government, freed it of water by means of a tunnel, and began digging. The product comprises 25 per cent. copper and 75 per cent. silver, the latter averaging from 200 to 2,000 ounces to the ton. Mr. Christy has also come into possession of eight lead mines and the only known coal mine in Bolivia. The Bolivian Government, in consideration of what Mr. Christy has done, has given him the exclusive privilege of smelting in the republic for fifteen years.

Cinchona Bark.—Calisaya bark from Bolivia, a species of cinchona, in 1889 was chiefly shipped to Hamburg. The cultivated flat calisaya bark is highly appreciated abroad, notably in France, where it has been introduced into the army and navy hospitals. Shipments of cinchona bark from Ceylon to London have fallen off considerably of late years; thus, from Oct. 1, 1885, to June 13, 1886, they were 11,995,310 pounds; in 1886-'87, 10,979,218; in 1887-'88, 8,553,756, and in 1888-'89, 8,091,404; the total shipments from Ceylon were, 1886-'87, 14,389,184 pounds; 1887-'88, 11,704,932, and 1888-'89, 10,209,481. Planters in the British East India colonies and Java have gradually abandoned cinchona culture and substituted that of tea, because overproduction brought about such a fall in prices that the industry became unremunerative. As consumption had meanwhile been stimulated all over the world by the low prices, it began to outrun the supply in the autumn of 1889, and in October the price of quinine advanced in London from 11*d.* an ounce to 14½*d.*, and in New York from 22 cents to 30 cents.

Coca.—Coca leaves from Bolivia and Peru have also been in scanty supply in Europe and the United States in 1889, the shipments being quite light, and there being a total absence of handsome green leaves. Inundations in the producing districts diminished the amount avail-

able for exportation. Only a few parcels of Bolivian coca arrived at Hamburg *via* New York, and the general tendency was upward on both sides of the Atlantic. The coca shrub resembles the tea plant, attaining a height of about six feet. The seeding is done early in the rainy season; a little later the plant is transplanted to the slopes of the Cordillera, and at the end of eighteen months the first leaves are gathered. The shrub continues in bearing for thirty years. The chief producing districts are the provinces of Mapiiri and Yungas in Bolivia, and Carabaya in Peru, the trade centering at Cuzco, Peru. The native Indians consume annually 15,000 tons of coca leaves.

BRAZIL, an empire in South America. (For details relating to area, territorial divisions, population, etc., see "Annual Cyclopædia," for 1884.)

Government.—The Emperor was Dom Pedro II, born Dec. 2, 1825. His Cabinet was composed of the following ministers: President of the Council of Ministers and Minister of Finance, Senator Affonso Celso, Visconde de Ouro Preto; Minister of the Interior, Franklin Daria, Baron de Soreto; Minister of Justice, Senator Cândido de Oliveira; Minister of Foreign Affairs, Dr. Diana; Army, Visconde de Maralajú; Navy, Baron de Ladoris; Agriculture, Laureço de Albuquerque. The Brazilian Minister at Washington is Dom J. G. do Amaral Valente. The Consul-General of Brazil at New York is Dr. Salvador Mendonça. The American Minister at Rio de Janeiro is Thomas J. Jarvis; the Consul-General, H. Clay Armstrong.

Finances.—On May 15, 1889, the foreign debt of Brazil amounted to £28,190,000, and the internal debt to 598,800,000 milreis. As the Government has withdrawn its treasury notes, the floating debt arising therefrom had been obliterated. The Government still had to its credit with its financial agents in London the sum of £2,000,000, balance due the Government out of its last loan. The paper money then in circulation was 188,861,000 milreis. The budget for 1889 estimated the income at 147,200,000 milreis, and the outlay at 173,415,408, including 20,266,966 milreis extraordinary expenses; that for 1890 estimates the revenue at 150,769,500 milreis and the expenditure—including 19,748,208 of extraordinary outlays, chiefly on railroads—at 170,967,928 milreis. In 1888 the revenue exceeded the first estimate by 9,000,000 milreis, while the expenditure remained 3,200,000 milreis below the estimate.

The subscriptions to the 100,000,000 milreis European 4-per-cent. loan of the Brazilian Government amounted, in September, 1889, to nearly four times what was wanted; the loan, equaling £11,250,000, was negotiated at 90, and immediately after it had been taken it commanded 1¼ per cent. premium in London.

Army and Navy.—The actual strength of the army is 18,164 men, including commissioned officers and enlisted men.

The navy is composed of 52 vessels doing active service, 9 of them being armored, 5 cruisers, 16 gunboats, 2 steam transports, 5 school ships, 13 torpedo boats, and 2 steam tugs; mounting together 254 guns, and having a collective horse-power of 19,329, and a tonnage of 40,252. It is manned by 5,272 sailors.

Postal Service.—In 1888 there were 1,983 post-offices, which handled during the year 688,169 Government messages, 12,942,098 private letters, 501,041 printed circulars, 16,149,092 newspapers, and 783,404 samples. The receipts were 2,050,000 milreis, and the expenses 2,310,000.

145,055 tons; in 1888, 177,818 tons; in 1889, 117,185 tons.

The export of India-rubber from Pará in 1888 was 15,032 tons, of which 8,890 went to the United States and 6,142 to Europe.

The foreign trade movement of Rio de Janeiro



RIO DE JANEIRO.

Telegraphs.—In 1888 the 170 telegraph offices forwarded 528,161 messages, over a length of line of 10,630 kilometres, the length of wire being 18,364. The receipts were 1,482,102, and the expenses 2,421,769 milreis. Early in May, 1889, was published the call for tenders for the telegraph-cable concessions between the United States and Brazil, to be received till Oct. 30 in London, Paris, Washington, and Rio de Janeiro.

Commerce.—The development of Brazil's foreign commerce during the years 1882-'83 to 1887-'88 is shown in the ensuing table, reduced to *contos*, or thousands of milreis:

YEARS.	Import.	Export.	Total trade.
1882-'83	190,264	197,088	387,297
1883-'84	194,482	216,014	410,446
1884-'85	178,481	226,270	404,701
1885-'86	197,502	194,962	392,464
1886-'87	209,407	263,520	472,927
1887-'88	260,999	212,592	473,591

The coffee shipments from the ports of Rio de Janeiro and Santos were as follows, during the twelve months from July 1 to June 30:

DESTINATION.	1888-'89.	1887-'88.
	Bags.	Bags.
Europe	3,320,008	1,312,784
The United States	2,865,313	1,764,581
Other countries	147,473	117,773
Total	6,332,789	3,195,138

The sugar exportations from Pernambuco have been as follows: In 1886, 106,797 tons; in 1887,

in 1888 was as follows: Imports, 133,471,925 milreis; exports, 95,752,919. The imports were chiefly from the following countries, with the amount set against each: United States, 7,322,074 milreis; England, 47,061,810; France, 16,969,942; Germany, 13,254,683; Uruguay, 19,670,636; Argentine Republic, 11,069,193; Belgium, 5,361,136; Portugal, 7,593,343. The exports were distributed as follows: To the United States, 58,488,132 milreis; England, 4,523,178; France, 7,182,531; Germany, 10,485,739; Uruguay, 887,259; Argentine Republic, 2,202,431; Belgium, 2,457,429; Portugal, 337,126. The American trade with Brazil exhibits these figures:

YEARS.	Import into the United States.	Domestic export to Brazil.
1888	\$55,259,228	\$8,160,523
1887	56,377,719	7,103,845

Flour exportation from the United States to Brazil amounted during the quinquennium 1874-'78 to 2,765,732 barrels. In the next five years, 1879-'83, it reached 3,291,342, and in the last five years, 1884-'88, it was 3,199,353, the total during the fifteen years being 9,266,427 barrels, or 617,762 on an average. The largest shipments were in 1887, 748,937 barrels.

Complaints have reached the State Department at Washington from American Consuls in southern Brazil of the practice, which has become quite prevalent, of falsifying American trade-marks. Austro-Hungarian manufacturers have made similar complaints.

New Extra Duty.—In order to protect domestic manufacturers against the competition of imported goods, now that the exchange on London has risen so much under the improvement in Brazilian finances, the Chambers passed a bill on Nov. 24, 1888, authorizing the Government to levy an additional import of 6 per cent. on such goods as are also manufactured in Brazil, whenever the exchange ranges between 22½ and 25*d.*, 15 per cent. when it fluctuates between 26 and 27½*d.*, and 20 per cent. whenever it commands over 27½*d.* the milreis. This changeable tariff constitutes an extra rate applied to the tariff of 1887, the one still in force. The 5 per cent. additional duty decreed July 1, 1886, in favor of the emancipation fund is still levied in spite of the abolition of slavery.

Railroads.—The total length of railroads in operation in Brazil on Dec. 31, 1888, was 8,930 kilometres, and there were 1,574 kilometres in course of construction. The increase during the year was respectively 444 and 177 kilometres. Some of the lines are the property of the state, a greater number are subsidized with an interest guarantee either on the part of the imperial exchequer or the provincial governments. The railroads belonging to the state comprise ten lines, which, up to the date named, had involved a total outlay of 195,636,000 milreis. Sixteen lines enjoy the state's guarantee, three of them being domiciled at Rio de Janeiro, eleven of the lines possess a charter in perpetuity, while the remaining five have a ninety-year charter. The guarantee runs for thirty years with nearly all of them. The capital guaranteed amounts to £16,125,352, of which £973,121 bear 6 per cent. interest, and £15,152,231 7 per cent.

The net earnings of all the state lines did not exceed 4,724,727 milreis, being less than 2½ per cent. on the capital invested, only two lines having earned any money.

River Navigation.—A syndicate of American and Canadian capitalists proposes to establish steamboat and railway communication between Pará, a seaport town at the mouth of the Amazon, and the headwaters of the Tocantins and Araguaya rivers, tributaries of the Amazon. A line of steamers will ply between Pará and a point on the Rio Tocantins, three hundred miles from the coast. Dangerous rapids will here be overcome by a railway sixty-five miles long. From the western terminus of this projected railway steamers will run fifteen hundred miles into the interior. In connection with this project, a steamship line is to be established between Pará, New York, and Montreal.

A company was incorporated in the summer of 1889 under the title *Viação Central do Brazil Company*, which intends establishing river navigation from Sabara, the terminus of the Pedro II Railway on the Rio das Velhas, to Jabota, the terminus of the Paulo Affonso Railway, on the São Francisco and its tributaries. In connection therewith, the company is to build a railroad from a convenient point on the Rio das Velhas to Diamantina with a branch line to Serro. The capital is to be 4,000,000 milreis, of which 3,000,000 will receive a 7-per-cent.-interest guarantee from the province of Minas-Geraes, the concession to be in force for fifty years. More-over an annual subsidy of 90,000 milreis is con-

ceded on the remaining 1,000,000 milreis, by the Imperial and provincial governments jointly.

New Steamer Lines.—During the summer of 1889 the Government made a contract with two steamer lines, granting them a subsidy under provision of the budget law for 1889. One will ply between Santos and Hamburg, *via* Lisbon and Havre; the other, between Santos and Genoa, *via* Marseilles. The concession is to extend over fifteen years and involve a subsidy of \$12,500, American gold per round trip which amount will be doubled whenever one of the steamers brings a load of immigrants. The lines have the option of touching at any European port, the Azores, Madeira, and the Canary Islands, for the purpose of taking on immigrants for any Brazilian port. The Government agrees to pay \$25,000, American gold, annually for five years, toward defraying the passage of such immigrants. The number of immigrants landed in 1888 was 131,271.

Sugar.—The Brazilian Government, in June, 1889, informed the nations represented at the London Sugar Conference that it was unable to join the league having for its object the discontinuance of bounties to sugar-producers, inasmuch as in this matter it is tied at home by the necessities of the sugar-planting interest. The Government guarantees 6 per cent. interest per annum for several years to thirty-five central sugar-houses, on a total capital of 30,000,000 milreis, distributed throughout the sugar-producing provinces. The Provincial Government and Legislature of Pernambuco have now resolved to imitate the Imperial Government and tender to eleven new sugar-houses an interest guarantee.

Sugar and Wine Exhibition.—The Centro da Industria e Commercio de Assucar opened on Jan. 5, 1889, its exhibit of domestic sugar and wine industries. The number of exhibitors exceeded two hundred, and that of samples two thousand. About eighty samples of wines were shown. In viticulture the province of São Paulo holds the first rank; its dark wine has become popular at home. The wines of Rio Grande do Sul, Santa Catharina, Minas-Geraes, and Paraná are lighter. It was found that most of these wines, especially samples from Minas-Geraes, possess a certain sour taste like common cider. It has so far been impossible to classify Brazilian wines, the method of manufacture being too primitive. The Imperial Government has procured an expert from Vienna, Austria, who is to give his advice after visiting the São Paulo vineyards. In São Paulo a nursery experiment station, and oenological school are to be established under his superintendence.

Attempt on Dom Pedro's Life.—On the evening of July 16, when the Emperor was leaving the theatre, a Portuguese fired a shot from a revolver at him, but missed him.

The Empire changed to a Republic.—On the morning of Nov. 15, as Dom Pedro II was leaving the imperial chapel at his summer residence at Petropolis, after the performance of mass, he was handed a telegram from Viscount De Ouro Preto, the Imperial Prime Minister, requesting that he immediately come to Rio de Janeiro, as since dawn insurgents had placed the city under siege, and artillery commanded the streets. Dom Pedro at once returned to Rio de

Janeiro. On his arrival at the palace, it was immediately surrounded by troops, and an officer of the army read to him a manifesto proclaiming the republic. This was as follows:

Fellow-citizens: The people of the army and navy, are in perfect accord with the sentiments of our fellow-citizens residing in the provinces. The fall of the imperial dynasty has just been decreed, and the consequent destruction of the monarchical system. As an immediate result of this national revolution, essentially patriotic in its character, there has just been established a provisional Government, whose principal mission is to guarantee the maintenance of public order and the protection of the liberty and rights of citizens. To carry on the government until the sovereign nation can, through its constitutional organization, select a definite government, the undersigned citizens were appointed as the chief executive power of the nation.

Fellow-citizens: The provisional Government—simply the temporary agent of the national sovereignty—is the government of peace, liberty, fraternity, and order. It will use the attributes and extraordinary

This manifesto was signed by Marechal Deodoro da Fonseca, chief of the provisional Government; Aristides Da Silveira Lobo, Minister of the Interior; Ruy Barboza, Minister of the Treasury and of Justice; Benjamin Constant Botelho De Magalhaes, Minister of War; Eduardo Wandenkolk, Minister of Marine; Quintano Bocayuva, Minister of Foreign Affairs.

After the reading of the decree, Dom Pedro held a meeting of his ministers and councilors of state. He endeavored to form a new ministry, with Señor Sarawa at its head, but to this Gen. da Fonseca objected, and sent the following note to the Emperor:

The democratic sentiments of the nation, combined with resentment at the systematic repressive measures of the Government against the army and navy, and the spoliation of their rights, have brought about the revolution. In the face of this situation, the presence of the imperial family is impossible. Yielding, therefore, to the exigencies of the national voice, the provisional Government is compelled to request you to depart



BAHIA.

powers with which it is vested for the defense of the subjects of the country and of public order. The provisional government by all the means at its command, promises to guarantee to all the inhabitants of Brazil, native and foreign, security of life and property, and to respect their rights, both individual and political, except when they require to be limited for the good of the country and for the legitimate defense of the government proclaimed by the people, by the army, and by the navy.

The ordinary functions of justice, as well as those of civil and military administration, will continue to be exercised by those bodies heretofore existing. In regard to those holding office, the rights required by each functionary will be respected. The abolition of the Senate is decreed, and also of the Council of State. The Chamber of Deputies is declared dissolved.

Fellow-Citizens: the provisional Government recognizes and acknowledges all the national engagements contracted by the former Government—the treaties with foreign powers; the public debt, both internal and foreign; the contracts now in force, and the obligations legally established.

from Brazilian territory with your family within twenty-four hours. The Government will provide at its own expense the proper means for transport, and will afford protection for the imperial family during their embarkation. The Government will also continue the imperial dowry fixed by law until the constituted Assembly decides thereon. The country expects that you will know how to imitate the example set by the first Emperor of Brazil on April 7, 1831.

Dom Pedro's answer to this communication, which was promptly sent to Fonseca on the same day, was as follows:

Yielding to the imperiousness of circumstances, I have resolved to set out with my family to-morrow, for Europe, leaving this country, so dear to us all, and to which I have endeavored to give constant proofs of deep love during the nearly half a century in which I have discharged the office of chief of state. While thus leaving with my whole family, I shall ever retain for Brazil the most heartfelt affection and ardent good wishes for her prosperity.

On the same day the Comtesse d'Eu, eldest daughter of Dom Pedro, who acted as regent during his previous absence, issued the following manifesto:

With a broken heart I part from my friends, from the whole people of Brazil, and from my country, which I have so loved and still do love, toward whose happiness I have done my best to contribute, and for which I shall ever entertain the most ardent good wishes.

Her husband, the Count d'Eu, also wrote to the Minister of War, resigning command of the artillery and requesting leave to go abroad, adding that he had loyally served Brazil, and that, but for the circumstances which obliged him to quit the country, he would be ready to serve it under any form of government.

At two o'clock on the following morning, Major Tompofsci, with a detachment of soldiers, went to the palace and placed the members of the imperial family under arrest while they were still in bed. He bore written orders from Gen. da Fonseca that the Emperor and his family should embark forthwith. The Government would not allow them to wait until daylight, fearful lest any demonstration in the streets might result in bloodshed. Count d'Eu and his wife, the Princess Isabel, and their children, were compelled to leave the palace at three o'clock in the morning and walk to the quay. Dom Pedro and the Empress followed them immediately in a carriage guarded by troops. The imperial party embarked on a steam launch, and were taken to a man-of-war, which immediately went to Ilha Grande, an island sixty-eight miles from Rio de Janeiro, where the party were kept as prisoners until the afternoon, when they were transferred in small boats to the steamship "Algoas," with two lieutenants of the navy, whose duty was to see that the vessel went direct to Lisbon. She was also convoyed for a great part of the distance by the Brazilian ironclad "Riachuelo." The embarkation of the imperial family on the "Algoas" was so hurried that in the confusion a part of their baggage was left behind, and, the sea being very rough, the hands and wrists of the Empress were hurt as she was being hauled aboard. The "Algoas" touched at Teneriffe and arrived, after a stormy voyage, in the Tagus on the morning of Dec. 7. Many inquiries were made of Dom Pedro, touching his future and his attitude toward the Government of Brazil. In answer to all these he confined himself to the declaration that if summoned to return to Brazil, he would go. A manifesto issued on Dec. 18, by the Viscount Ouro Preto, late President of the Imperial Brazilian Ministry, concluded with these words: "Should the entire nation sanction the criminal attempt at establishing the republic it will be the duty of every Brazilian to respect the supreme verdict."

On Nov. 21 the provisional Government decreed universal suffrage to all Brazilians who could read and write, and promised to respect the pensions conceded to the poor by the ex-Emperor, and the matrimonial contract of the ex-Princess. A commission was appointed, consisting of Dr. Saldanha Marinho, president, and Santos Werneck, Americo Brazilense, and Rangel Pestana, to prepare a draft of a federal constitution. On Dec. 21 the provisional Government issued a de-

creree naming Sept. 15, 1890, as the time for holding a general election for delegates to the Constituent Assembly, and Nov. 15 following (the anniversary of the revolution) as the time, and Rio de Janeiro as the place, of holding the first session of the Assembly. A few days afterward a decree was issued canceling the annual allowance to the ex-Emperor in the the civil list and the subsidy of \$2,500,000 guaranteed to him by the provisional Government, prompted, it was alleged, by hostile sentiments of reactionaries in Lisbon. Another decree, on Jan. 10, 1890, announced a separation of the Church from the state, and the extinction of the patronage and resources of all religious institutions; but guaranteed to furnish ecclesiastical revenue and support for the actual *personnel* of the Catholic Church, and to subsidize the seminary professorships in other institutions for one year.

On Dec. 19, 1889, Mr. McMillan, of Tennessee, offered in the United States House of Representatives a resolution recognizing the Brazilian Republic; and on the same day Senator Morgan proposed in the Senate a similar recognition. Some of the senators and representatives preferred to await the meeting of the Constituent Assembly. Before definite action on these bills was taken, the President formally recognized the provisional Government by accepting, on Jan. 29, 1890, the credentials of J. G. do Amaral Valente as Minister to the United States, and of Salvador Mendoca as minister on a special mission to the United States.

The new Brazilian flag floated by the people on the declaration of the republic displayed three diagonal stripes, the two outside ones being of red, and the middle one white with a blue star in the center. But it is said by the newspapers, however, that the future flag of the Brazilian Republic will be designed like that of the United States, except that the stripes will be yellow and green alternating, and there will be fourteen stars in the jack.

The revolution was accomplished with but little bloodshed. The Imperial Minister of Marine, Ladario, received three pistol wounds while resisting arrest, and there was a riot at Maranhão, in which six negroes and one soldier were killed. With these exceptions, the country seems to have accepted the revolution very quietly. The banks were closed and business suspended for only twenty-four hours.

The principal cause that led to the revolution was a universal dislike of the centralizing system of the empire. There are in Brazil twenty provinces or states; each was allowed to have a legislature, but the governors were appointed by the Emperor. One of the standing evils against which the provinces have ineffectually protested was the appointment either of adventurers, or of worthless political partisans. In the later years of the Emperor's reign, it has been an unfailing source of irritation and complaint that the provinces have been governed, not for their own interests but for those of the Imperial Administration. The main object seemed to be to get as much money out of them as possible for the central treasury and to leave as little as might be for local improvements and requirements. Illustrations of the same centralized system are furnished by the text of the Imperial Constitution,

which Dom Pedro II would never consent to revise. While providing full guarantees for free speech, exemption from illegal arrest, religious toleration, and citizens' rights, it established a system of administration under the direct per-

through the army, and the soldiers petitioned Dom Pedro for an increase of pay. The Emperor and the Chamber of Deputies considered the matter, but did not grant it. The discontent of the soldiers increased, and the imperial



PINE FOREST, PROVINCE OF MINAS GERAES.

sonal control of the Emperor. The judges and magistrates were appointed by him, on the recommendation of his ministers. He was empowered to suspend sentences in the courts, to dismiss magistrates, and to veto legislative acts of the Chambers. Vacancies for the Senate were filled by the election of three candidates by the people, and the appointment of one of these by the Emperor. The Council of State was appointed for life, and was recruited from members of the Emperor's family and imperial sycophants. To these reasons must be added the personal unpopularity of the Count d'Eu.

It was generally admitted that a republic would be declared upon the Emperor's death; but the declaration was precipitated by the attempt of the Imperial Government to organize a *Garde Nationale* which should be officered by imperial partisans and in time enable the Government to disband the army and navy. The revolt against the monarchy was in the first instance the result of the coalition between the Military Club, founded by Gen. da Fonseca and the Associated Republican Leagues, of which Quintano Bocayuva was the chief organizer. The Club and Leagues united in a bloodless revolution.

Deodora da Fonseca, Chief of the provisional Government, has been most of his life a soldier. During the war between Brazil and Paraguay he did excellent service and became very popular. After that war he organized the Military Club at Rio de Janeiro, and thus attached himself to many brother officers. Through this club, it is claimed, considerable discontent was spread

authorities thought it wise to send Da Fonseca to a distant province. But their favorite's absence did not diminish their discontent. (See FONSECA, in this volume.)

Quintano Bocayuva, Minister of Foreign Affairs, is the best known member of the new Government. He is fifty-three years of age, a native of Rio de Janeiro. He has been a journalist since his youth, and has been in succession editor of the "Republica" (long since defunct), the "Globo," and the "Paes." He was ever an uncompromising republican, and held no office under the Imperial Government. He came to the United States fifteen years ago as emigration commissioner. His son was educated in the United States, and when the revolution broke out was assisting his father in editorial work.

Ray Barbosa, Minister of Finance, had long been known as an unswerving republican. He is a forcible writer and speaker, and was one of the foremost leaders of the minority under the empire. He is a pronounced anti-clerical, and one of his most famous speeches was delivered on the death of a Freemason who had been excommunicated by the Pope. As a Liberal, he has always been fearless, as shown by his introduction into the Chamber of Deputies of a bill to stop the allowance made to the German prince who had married one of Dom Pedro's daughters. He has for years represented a city of the province of Bahia in the Chamber of Deputies. Though Bahia is strongly Conservative, there are some Liberal districts in it, and the most Liberal of these had him as its representative.

Benjamin Constant Botelho de Magalhães, Min-

ister of War, is a native of Brazil, born about 1848. He has been an earnest student since his youth, taught for several years, and by his writings became well known as a republican. When the revolution broke out, he was a professor in the Polytechnic School at Rio de Janeiro.

Campos Salles, Minister of Justice, is a lawyer by profession, and but little known.

Eduardo Wandenkolk, Minister of Marine, is a practical seaman, holding the rank of admiral in the Brazilian navy. He is to the sailors what Da Fonseca is to the soldiers, a representative favorite of their profession, and the embodiment of republicanism. He is a handsome, middle-aged man, and wealthy.

Demetris Ribiero, Minister of Agriculture, is perhaps the least known member of the provisional Government. He comes from the interior, and is a warm personal friend of Da Fonseca.

BROWNING, ROBERT, an English poet, born in the parish of St. Giles, Camberwell, London, May 7, 1812; died in Venice, Italy, Dec. 12, 1889. His father's paternal ancestors were English, of a west-country family, one of whom, Micajah Browning, it is said, raised the siege of Derry in 1689 by springing the boom across Lough Foyle and lost his life in the act. The mother of Robert's father was a Creole. His mother's father, whose name was Weidemann, was a draughtsman and musician from Hamburg, and her mother was of a Scotch family. His father, whose name he bore, was a clerk in the Bank of England and possessed a considerable fortune. He seems to have been a man of strong character and a decided taste for literature; indeed, he had so much ability in verse-making that the son long afterward declared that his father was more of a poet than he himself was. He wrote, after the fashion of his day, in the heroic couplet and in the vein of Pope, but never published his poems. He early saw and encouraged his son's genius, but had little sympathy with the style in which it found expression.

The boy's bent toward poetry showed itself in a metrical translation from Horace when he was but eight years of age. By the time he was twelve he had written enough poems to fill a volume, but none of the publishers to whom they were sent cared to take the risk of putting them into print. Among those who saw the verses were the Misses Flower, one of whom has since become well known as the author of the hymn "Nearer, my God, to Thee." Her sister was so impressed with the merit of the boy's work that she copied the entire manuscript and gave it to the Rev. W. J. Fox, a distinguished Unitarian preacher. Though he saw that the publication of the crude verses would be unwise, Mr. Fox recognized the poetic promise in them and retained the copies, which were returned to Mr. Browning in 1864 by Mr. Fox's daughter.

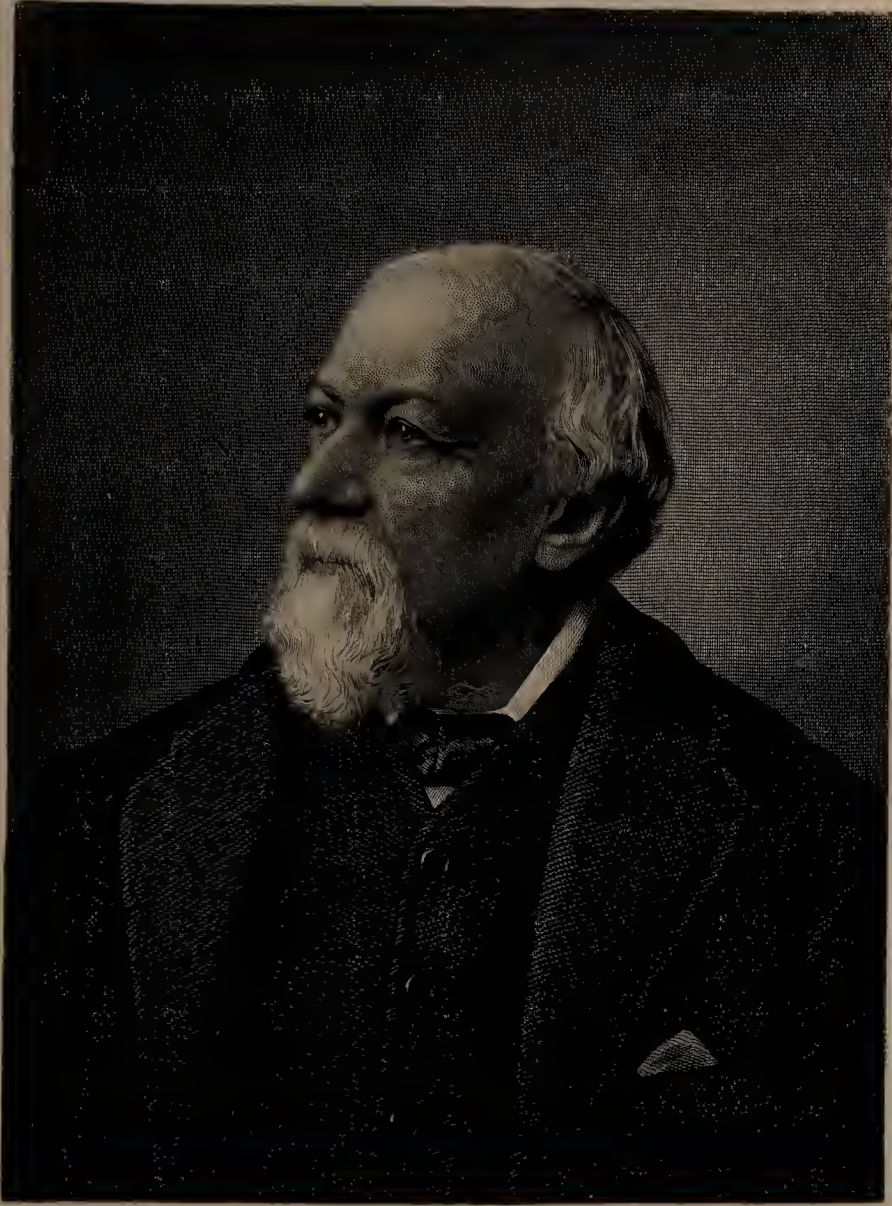
The boy's education was conducted mainly by private teachers at home, though he was for a time at a school in Dulwich and was present at the opening term of London University, of which his father was an original shareholder. Some years ago he was appointed a governor for life of this university. When the time came for him to choose his profession in life, his father willingly acquiesced in his desire to prepare himself by travel and experience for the literary

career that he regarded as his vocation, without wasting time on any professional training.

His first published book, "Pauline: A Fragment of a Confession," appeared anonymously in 1833. It purports to be a confession to Pauline by her lover, a young poet, who accuses himself of various enormities in a vague way, but asserts his steady love for the goods of the imagination and his constant aspirations after God, and consciousness of his presence. It is probably a first attempt in that dramatic monologue which was afterward so favored a form of expression with him, a portrayal of the possible experiences of a young and very self-centered poet, rather than a transcript of his own emotions, though the two would naturally be more or less blended. Five years afterward he wrote on the fly-leaf of a copy of the original edition: "'Pauline,' written in pursuance of a foolish plan I forget, or have no wish to remember; involving the assumption of several distinct characters; the world was never to guess that such an opera, such a comedy, such a speech, proceeded from the same notable person. . . . 'Only this crab' (I find set down in my copy) 'remains of the shapely Tree of Life in my Fool's Paradise.'" The poem is noticeable for its enthusiastic apostrophe to Shelley, whose works, with those of Keats, had fallen into his hands in 1825, and who had taken the place of his earlier master, Byron. He afterward wrote an essay, as an introduction to a volume of supposed letters of Shelley, in which he speaks of "the signal service it was the dream of boyhood to render to Shelley's fame and memory." "Pauline" is written in smooth, but not always correct, blank verse, showing little of the character of his later style. It met with small success in the ordinary sense; most of the reviews passed it by with a little contemptuous comment or none at all, though the Rev. W. J. Fox reviewed it very favorably in his "Monthly Repository," and Allan Cunningham devoted several columns to it in the "Athenæum." Mr. Gosse tells an incident of John Stuart Mill, who happened to get hold of a copy and was so impressed with it that he wrote to the editor of "Tait's Magazine," asking for space to review it at length. The editor replied that "nothing would have been more welcome, but that, unfortunately, in the preceding number the poem had been dismissed with one line of contemptuous neglect. Mr. Mill's opportunities extended no further than this one magazine; but at his death Mr. Browning came into possession of this identical copy, the blank pages of which were crowded with Mill's annotations and remarks. The late John Forster took such an interest in the volume that he borrowed it—'convey, the wise it call'—and when he died it passed with his library into the possession of the South Kensington Museum, where this curious relic of the youth of two eminent men has at last found a resting-place." After it had gone out of print, Dante Gabriel Rossetti found a copy in the British Museum, and was so impressed with it that he copied it entire for his own use. Detecting some likeness in it to later work of Browning, he wrote to ask him if he were not the author, which was the beginning of Mr. Browning's acquaintance with the then unknown painter and poet.

In 1834 Mr. Browning set out on the travels





Robert Browning

that formed a part of his plan of preparation for his life work, going to Russia, Germany, and Italy. Belonging to the time between the appearance of "Pauline" and "Paracelsus" we know of only four short poems that were published. These appeared in "Fox's Monthly Repository." Two of them were afterward introduced, one into "Pippa Passes" as the song "A King lived Long Ago," and the other into "James Lee's Wife," as the stanzas quoted in "Under the Cliff." The other two were the "Madhouse Cells," two very remarkable poems, one "Johannes Agricola in Meditation," an expression of the madness of religious fanaticism in the character of the great Antinomian, the other, "Porphyria's Lover," an expression of the madness of love. Though in his later style as regards subject and treatment, they are singularly lucid in expression and pure in versification.

"Paracelsus" appeared in 1835. It is dramatic in form and gives the story of the life of that celebrated empiric, mostly in dialogue between himself and his friend Festus, for the other two characters have little to say. Like "Pauline" and "Sordello," which soon followed, it is a study of the development of a soul, showing Paracelsus at significant points in his career. It begins with the lofty ambition to execute "God's great commission" by discovering the true secret of life for men:

I can devote myself; I have a life
To give; I, singled out for this, the One!
Think, think; the wide East, where old Wisdom
 sprung,
The bright South, where she dwelt; the hopeful
 North,
All are passed o'er—it lights on me! 'Tis time
New hopes should animate the world, new light
Should dawn from new revealings to a race
Weighed down so long, forgotten so long; so shall
The heaven reserved for us at last receive
Creatures whom no unwonted splendors blind,
But ardent to confront the unclouded blaze
Whose beams not seldom blessed their pilgrimage,
Not seldom glorified their life below.

And he is confident of the end, because so sure of the divine sending:

Be sure they sleep not whom God needs! Nor fear
Their holding light his charge, when every hour
That finds that charge delayed is a new death.
This for the faith in which I trust; and hence
I can abjure so well the idle arts
These pedants strive to learn and teach; Black Arts,
Great Works, the Secret and Sublime, forsooth—
Let others prize; too intimate a tie
Connects me with our God!

And next, on the verge of despair, he sees the mistake of seeking only to know, and excluding love; then his success, which seems to his friend a glorious consummation, is to himself a failure, coming, as it does, from the alloy of charlatanry that he has allowed to mingle with the honest endeavor to realize his high dreams:

Yet constituted thus, and thus endowed,
I failed; I gazed on power till I grew blind—
On power; I could not take my eyes from that.

And yet he believes that in some sense he has "attained," since he has come to know that there will arrive a third and better spirit among them—one devoted to both knowledge and love.

"Paracelsus" met with little favor from either book-buyers or book-reviewers; but a long and

enthusiastic article on it in the "Examiner," by John Forster, led to a life-long friendship between author and reviewer. Another friendship, formed at about the same time, led Mr. Browning to write his next dramas with a view to presentation on the stage. This was his friendship with William C. Macready, whom he met at a dinner given by the Rev. W. J. Fox late in 1835. The actor took a violent fancy to the young poet, invited him to spend the following New Year's Day at his house at Elstree, read "Paracelsus," and suggested that its author should write a drama for him to play. Accordingly, "Strafford" was written, and was presented at Covent Garden Theatre, May 1, 1837. Macready took the principal part, and Miss Helen Faucit that of Lady Carlisle. It was played to good houses, and was well received; but the leading actors were poorly supported, and the finances of the theatre were in a ruinous condition; and so the piece was withdrawn after five representations. It was revived at the Standard Theatre in 1886, with moderate success. The *motif* of "Strafford" is the devotion of the minister to his king—a kind of devotion that the Stuarts found so easy to inspire and so easy also to forget. In the preface to the first edition, the author says the portraits are faithful to history as he understands it, Lady Carlisle's part only being imaginary; and Mrs. Orr, in her "Handbook," tells us that he afterward regarded his conception of her as having been confirmed by a very recent historian of the reign of Charles I. The drama was published, after its presentation on the stage, by the Longmans.

Two other tragedies, written within the next three years, were designed for the stage, but no manager was found to bring them out, and they were not published till 1842 and 1843. The first, "King Victor and King Charles," is founded on an incident in the history of Sardinia in 1730-'31—the abdication of Victor II. in favor of his son Charles, and his subsequent attempt to resume the throne. The four characters are drawn with great strength, particularly the selfish, cunning, and unscrupulous old king and his affectionate, sensitive, and upright but vacillating son. The other play was "The Return of the Druses," a spirited drama, first named "Mansoor the Hierophant." The scene is laid in the fifteenth century, in an island of the Southern Sporades colonized by the Druses of Lebanon, but governed by a prefect appointed by the Knights Hospitallers of Rhodes. The play is founded on the belief of the Druses in successive incarnations of God; the hero, Djabal, who aspires to be the deliverer of his people from the persecutions of the prefect, conceives the idea of arousing their enthusiasm by leading them to think that at this hour of their need the Supreme has been incarnated in him:

When suddenly rose Djabal in the midst,
Djabal, the man in semblance, but our God
Confessed by signs and portents. Ye saw fire
Bicker round Djabal, heard strange music flit
Bird-like about his brows?

The character of Anael, the girl beloved by Djabal, is drawn with great delicacy and fineness of touch in the struggle of her love and her religious feeling. To the same period belongs the lyrical drama, or masque, "Pippa Passes," pub-

lished in 1841. But in 1840 appeared "Sordello," an epic poem in which Mr. Browning, perhaps in consequence of his failure to get his new plays represented, returned to his former idea of following by minute detail and close analysis the development of an ambitious and imaginative nature. "Sordello" was a poet of Mantua, who lived in the later part of the twelfth century, said to have been the son of Taurello Salinguerra, a Ghibelline soldier who plays an important part in the story. Sordello is mentioned by Dante in the "Purgatorio" as saying to Virgil: "O Mantuan, I am Sordello of thy land," and again in the "De Vulgare Eloquentia" he is said to have created the Italian language. He was one of the first of the ballad-makers, and seems to have filled a large place in his time, being credited by tradition with many brilliant exploits in love and war. This poem is by common consent acknowledged to be the most difficult to understand of all Browning's works. It is, indeed, a proverb for all that is involved, unintelligible, and dull. It serves as a ready-made joke for the wits who would laugh down "the Browning craze," and it is shunned even by the majority of the author's admirers. It is said that Tennyson declared he found but two intelligible lines in it, and they were not true. These were the first and the last:

Who will may hear Sordello's story told,
and
Who would has heard Sordello's story told.

In his dedication to the edition of 1863, Mr. Browning says he had spent some time and trouble in an endeavor to turn his work "into what the many might—instead of what the few must—like," but after all he concluded that it was better to let it stand as he had first imagined it. "The historical decoration was purposely of no more importance than a background requires; and my stress lay on the incidents in the development of a soul; little else is worth study. I, at least, always thought so; you, with many known and unknown to me, think so; others may one day think so." It is, indeed, in his most involved and digressive style, and is made still more difficult by its complication with mediæval Italian history and obscure historical characters. Yet a little close attention bestowed on it at the beginning soon opens to the reader the author's manner and brings him to passages of beauty and insight that would now make the fortune of a new poet if published alone. There is scarcely a page of the poem that would not yield some lines which would be taken as proof that a singer of original power had arisen.

At the suggestion of Edward Moxon, the publisher, Mr. Browning began in 1841 to issue poems in a series of pamphlets of sixteen double-column pages each. The numbers were sold first at sixpence, then at one shilling, and afterward at two shillings and sixpence each, and appeared, eight of them, at irregular intervals from 1841 to 1846. The title of the series, "Bells and Pomegranates," is taken from the description in Exodus of the decorations upon the hem of the robe of the high-priest. He explained at the end of the series: "I meant by the title to indicate an endeavor toward something like an alternation or mixture of music with discoursing, sound with sense, poetry with thought, which

looks too ambitious thus expressed, so the symbol was preferred." These poems were referred to by Elizabeth Barrett—afterward Mrs. Browning, but then a stranger to the author—in her "Lady Geraldine's Courtship":

Or from Browning some pomegranate, which, if cut
deep down the middle,
Shows a heart within, blood-tinctured, of a veined
humanity.

In this series were published all the dramas except "Strafford" and the fragment "In a Baleony," many of the "Dramatic Lyrics" and "Dramatic Romances," and some of the poems now in "Men and Women." The initial number contained "Pippa Passes," the first of his works to achieve popularity. The conceit on which it is founded is one to satisfy the sentimentally religious taste; and its bright, clear, high-pitched lyrical strain appeals at once to the lover of poetry. Pippa is a young girl from the silk-mills, who, during a New-Year holiday, when the whole action of the piece takes place, passes singing through the town among or near various persons and groups of persons; and every time her song has some subtle correspondence to the circumstances, or state of mind, or intent of these persons, in whose places she is fancying herself, deeming them most happy and enviable. And all are saved by hearing her songs (which strike a chord in their consciences) from some intended sin or wrong.

The "Dramatic Lyrics" included the striking studies "My Last Duchess," "Count Gismond," and "Soliloquy in a Spanish Cloister"; "Waring," written on the disappearance of Alfred Domett, author of the well-known Christmas hymn and many other poems scarcely known at all; "In a Gondola," enclosing the exquisite love-song "The Moth's Kiss First"; the spirited poem "Through the Metidja to Abd-el-Kadr," which is a puzzle to readers inexperienced in Browning's turns of expression; and the popular "Pied Piper of Hamelin," which had been thrown off to amuse little Willie Maeready.

"A Blot in the 'Seuteheon,'" written in five days, presented at Drury Lane Theatre in February, 1843, and published as No. 5 of the "Bells and Pomegranates," is generally regarded as the most powerful of the dramas. The *motif* of the action, which is the high sense of honor in an ancient English race, the exquisite delineation of the characters of Mildred and Thorold Tresham, the sustained nobleness of the poetic style, together with the directness of expression and the appeal to common sympathies, especially fit it to be the most popular, as well as the best adapted to the stage, of all the dramas. Charles Dickens is reported to have said of it: "Browning's play has thrown me into a perfect passion of sorrow. To say that there is anything in its subject save what is lovely, true, deeply affecting, full of the best affection, the most earnest feeling, and the most true and tender source of interest, is to say that there is no light in the sun and no heat in blood. It is full of genius, natural and great thoughts, profound and yet simple and beautiful in its vigor. . . . And if you tell Browning that I have seen it, tell him that I believe from my soul there is no man living (and not many dead) who could produce such

a work." The presentation of this play at Drury Lane was attended by curious circumstances, for an account of which we are indebted to Mr. Gosse. Mr. Macready had assumed the management of the theatre, and had asked Browning to write a play for him. He had expressed great enthusiasm for "The Blot in the 'Scutcheon," and Browning was surprised that, after the other new plays that had been announced were withdrawn, the manager seemed in no haste to bring it out. The truth was that Macready was in serious financial straits, and was hoping that Browning, who was entirely ignorant of this fact, would become indignant at the delay and withdraw his drama. As this was not done, he gave the principal rôle to Mr. Phelps, a new actor, expecting that Mr. Browning would refuse to have it played without Macready himself. When this ruse failed and Mr. Phelps was taken ill, Macready decided to take the part, but changed the title of the piece, cut off the first act, and took out the tragic ending, closing with some lines of his own. To save the drama from this mutilation, the author had it hurriedly brought out by his publisher; and, when Mr. Phelps appeared at the theatre convalescent and expressed his willingness to learn and undertake the part, Mr. Browning took Phelps with him into the green-room, where Macready was already studying the play in its printed form, with the actors around him. "Mr. Browning stopped him, and said: 'I find that Mr. Phelps, although he has been ill, feels himself quite able to take the part, and I shall be very glad to leave it in his hands.' Mr. Macready rose and said: 'But do you understand that I, I am going to act the part?' 'I shall be very glad to intrust it to Mr. Phelps,' said Mr. Browning, upon which Macready crumpled up the play he was holding in his hand and threw it to the other end of the room. After such an event, it was with no very hopeful feelings that Mr. Browning awaited the first performance on the next night, Feb. 11. He would not allow his parents or his sister to go to the theater; no tickets were sent to him, but, finding that the stage-box was his, not by favor but by right, he went with no other companion than Edward Moxon. But his expectations of failure were not realized. Phelps acted magnificently, carrying out the remark of Macready that the difference between himself and the other actors was that they could do magnificent things now and then, on a spurt, but that he could always command his effects. Anderson, a *jeune premier* of promise, acted the young lover with considerable spirit, although the audience was not sure whether to laugh or no when he sang his song 'There's a Woman like a Dewdrop' in the act of climbing in at the window. Finally, Miss Helen Faucit almost surpassed herself as Mildred Tresham. The piece was entirely successful, though Richard H. Horne, who was in the front of the pit, tells me that Anderson was for some time only half serious, and quite ready to have turned traitor if the public had encouraged him. When the curtain went down, the applause was vociferous. . . . The 'Blot in the 'Scutcheon' was announced to be played 'three times a week until further notice,' and was performed with entire success to crowded houses, until the final collapse of Mac-

ready's schemes brought it abruptly to a close." Curiously enough, Mr. Browning himself, in some notes that he wrote in 1881 on a biographical sketch, says that Macready and Helen Faucit took the leading characters in the drama at Drury Lane. The play was revived in 1848 by Mr. Phelps, who played it for two weeks at Sadler's Wells Theatre. It was again presented in Washington, D. C., in 1885 by Lawrence Barrett, who took the part of Thorold.

In 1844 was published "Colombe's Birthday." Colombe is Duchess of Jülich and Cleves in the seventeenth century; and it has been said in sketches of the author that the play was presented in 1844 as "The Duchess of Cleves" by Miss Cushman, at the Haymarket. Mr. Browning corrected the statement except as regards the title, so that possibly he had given that name at first to his drama. It was not acted until 1852 or 1853, when Miss Faucit took the leading part. It was again performed in St. George's Hall, London, in 1885, with Miss Alma Murray as Colombe. In 1854 it was presented at the Howard Athenæum, Boston, Mass. Of the love scene in the fourth act of this last performance, Moncure D. Conway writes: "I remember well to have seen a vast miscellaneous crowd in an American theatre hanging with breathless attention upon every word of this interview, down to the splendid climax when, in obedience to the duchess's direction to Valence how he should reveal his love to the lady she so little suspects to be herself, he kneels—every heart evidently feeling each word as an electric touch, and all giving vent at last to their emotion in round after round of hearty applause." The character of Colombe, the girlish duchess who develops into a woman in the varied experiences of the single day in which the whole action of the drama takes place, is very beautiful. "The gay girlishness of the young duchess, her joyous and generous light heart, her womanliness, her earnestness, her clear, deep, noble nature, attract us from her first words, and leave us, after the hour we have spent in her presence, with the inalienable uplifting memory that we have of some women whom we meet, for an hour or a moment, in the world or in books." Valence, the man of brains and spirit under a pale and shabby exterior, and Berthold, the man of action and ambition, are drawn with power and spirit, as are also the minor characters, all of whom stand out in distinct individuality. The play is the brightest and most pleasing of Browning's dramatic work.

"The Bishop orders his Tomb at St. Praxed's" appeared in 1845. It shows the culmination of the passion for magnificent display in art and costliness that might arise from the manner of life of an Italian prelate in the most luxurious age of the Church. In the half-delirium of approaching death, the bishop gives his sons directions how to build his tomb, with a frantic idea that the peace of his slumbers will depend on the perfection of its style, the splendor of its marbles, and the purity of its Latin epitaph, as well as on the despair its beauty will inspire in a hated rival whose bones lie in the same church in the niche the bishop had selected for himself:

Peach-blossom marble all, the rare, the ripe,
As fresh-poured red wine of a mighty pulse—
Old Gandolf with his paltry onion-stone,

Put me where I may look at him ! True peach,
Rosalind and flawless ; how I earned the prize !

All the time he is all but sure that his sons will seize his possessions and disregard his orders for the tomb, for which he has saved from the conflagration of his church and hidden in a vineyard a great lump of *lapis lazuli* :

So, let the blue lump poise between my knees,
Like God the Father's globe on both his hands
Ye worship in the Jesu Church so gay.

Of this poem Ruskin says : " I know of no other piece of modern English prose or poetry in which there is so much told as in these lines of the Renaissance spirit—its worldliness, inconsistency, pride, hypocrisy, ignorance of itself, love of art, of luxury, and of good Latin. It is nearly all I said of the central Renaissance in thirty pages of 'The Stones of Venice,' put into so many lines, Browning's being also the antecedent work. The worst of it is that this kind of concentrated writing needs so much solution before the reader can fairly get the good of it that people's patience fails them, and they give up the thing as insoluble ; though, truly, it ought to be the current of common thought, like Saladin's talisman, dipped in clear water, not soluble altogether, but making the element medicinal."

Among the shorter poems included in the series under the titles of "Dramatic Lyrics" and "Romances," not already mentioned, were several of those by which Browning is best known to the public that does not concern itself with his more involved works : "Home Thoughts," which has in it the much-admired lines :

That's the wise thrush ; he sings each song twice
over,
Lest you should think he never could recapture
The first fine careless rapture !

"How they brought the Good News from Ghent to Aix"—that of the pacification of Ghent, 1576—"Saul," "The Lost Leader," "The Glove," which takes a new view of an old story in a whimsical way peculiar to Browning, "Time's Revenges," and the spirited lyrics called "Cavalier Tunes." It has been questioned whether there is foundation in fact for "How they brought the Good News," and who was the original of "The Lost Leader." Mr. Browning says there is no historical foundation for the former poem, and that he wrote it under the bulwark of a vessel off the African coast, after he "had been at sea long enough to appreciate even the fancy of a gallop on the back of a certain good horse York," then in his stable at home. As to "The Lost Leader," he says : "I did, in my hasty youth, presume to use the great and venerated personality of Wordsworth as a sort of painter's model ; one from which this or the other particular feature may be selected and turned to account. Had I intended more—above all, such a boldness as portraying the entire man—I should not have talked about 'handfuls of silver and bits of ribbon.' These never influenced the change of politics in the great poet, whose defection, nevertheless, accompanied as it was by a regular face-about of his special party, was, to my juvenile apprehension, and even mature consideration, an event to deplore."

The last number of the "Bells and Pomegran-

ates" (1846) contained the dramas "Luria" and "A Soul's Tragedy." Luria is a Moorish general in command of the Florentine army opposed to the army of Pisa. But Florence does not trust him, and there is a secret plan to bring him to trial and destroy him as soon as his victory shall have been made secure ; in fact, a trial is secretly going on at the time. He is made aware of the plot by the Pisan general, who vainly tries to induce him to take revenge by deserting to the Pisan side ; for he is not, as the Florentines think, a half-barbarian, whose only desire is military glory ; he has a romantic love for Florence, born of his reverence for her beauty and art ; and when convinced of her treachery he dies by his own hand on the day when he has gained her the victory. The character is a curious combination of strength and gentleness, the man of action and the man of ideals. "A Soul's Tragedy" is not, as one would infer from the title, the story of the wrecking of a soul naturally noble ; it is rather the exposure of a mean and base nature by a set of circumstances specially calculated to bring out its baseness. The tragedy consists in the fact that a possibility of generous and noble action came to such a soul, surprising it by a sudden impulse into one magnanimous step ; but an opportunity immediately occurring for turning that step to selfish account, the natural baseness reasserted itself and conquered.

Mr. Browning's marriage with Elizabeth Barrett Barrett took place in 1846, soon after the issue of the last number of his serial poems. It is said that he first called to see her, to make acknowledgment of the allusion to him in "Lady Geraldine's Courtship," quoted above. She was three years his senior, an invalid worn with suffering and looking forward to an early death. The acquaintance speedily led to love ; but their marriage was opposed by Miss Barrett's father, for some unexplained reason. The gossip Miss Mitford is quoted as writing of it : "It was a runaway match. Never was I so much astonished. He prevailed on her to meet him at church with only the two necessary witnesses. They went by rail to Southampton, crossed to Havre, up the Seine to Rouen, to Paris by railway. There they stayed a week. Happening to meet with Mrs. Jameson, she joined them in their journey to Pisa ; and accordingly they traveled by diligence, by railway, by Rhone boat—anyhow—to Marseilles, thence took shipping to Leghorn, and then settled themselves at Pisa for six months." On account of Mrs. Browning's health, they took up their residence at Florence in the now famous Casa Guidi, where they spent most of the fifteen years of their married life, which is regarded as the ideal union of literary history. Hawthorne alludes to it in "The Marble Faun" : "As good as Harriet Hosmer's clasped hands of Browning and his wife, symbolizing the individuality and heroic union of two high, poetic lives!" Their love was celebrated by Mrs. Browning in the so-called "Sonnets from the Portuguese," which include some of her finest work, and by Mr. Browning in "One Word More," one of the tenderest and most beautiful of his poems. It is worth while to quote what Hawthorne, who met Mrs. Browning in London and visited at the home in Florence, writes of them in his "Note-Books," both because

it describes Mr. Browning's manner in social life and because it disposes of a statement made since his death that both he and his wife were believers in spiritualistic manifestations. In his account of the breakfast at Mr. Milnes's, in London, in 1856, he says: "After we left the table, Mr. Browning introduced himself to me—a younger man than I expected to see, handsome, with brown hair. He is very simple and agreeable in manner, gently impulsive, talking as if his heart were uppermost. He spoke of his pleasure in meeting me and his appreciation of my books, and—which has not often happened to me—mentioned that the 'Blithedale Romance' was the one he admired most. I wonder why." And of his visit to Casa Guidi, Hawthorne says: "Mr. Browning was very efficient in keeping up conversation with everybody, and seemed to be in all parts of the room and in every group at the same moment—a most vivid and quick-thoughted person, logical and common sensible, as I presume poets generally are in their daily talk. . . . There was no very noteworthy conversation, the most interesting topic being that disagreeable and now wearisome one of spiritual communications, as regards which Mrs. Browning is a believer and her husband an infidel. . . . Browning and his wife had both been present at a spiritual session held by Mr. Home, and had seen and felt the unearthly hands, one of which had placed a laurel wreath on Mrs. Browning's head. Browning, however, avowed his belief that these hands were affixed to the feet of Mr. Home, who lay extended in his chair, with his legs stretched far under the table. The marvelousness of the fact, as I have read of it and heard it from other eye-witnesses, melted strangely away in his hearty gripe and at the sharp touch of his logic, while his wife ever and anon put in a little gentle word of expostulation. I am rather surprised that Browning's conversation should be so clear and so much to the purpose at the moment, since his poetry can seldom proceed far without running into the high grass of latent meanings and obscure allusions." The celebrated medium spoken of by Hawthorne, Daniel D. Home, is supposed to be the original of "Mr. Sludge, the Medium," in Browning's "Dramatis Personæ."

Mrs. Browning died in 1861, leaving one child, Robert Barrett Browning, then twelve years of age, who has since won distinction as an artist. "Prospice," in "Dramatis Personæ," concludes with an allusion to her. The poem is a looking forward to death.

And the elements' rage, the fiend-voices that rave,
Shall dwindle, shall blend,
Shall change, shall become first a peace, then a joy,
Then a light, then thy breast,
Oh thou soul of my soul! I shall clasp thee again,
And with God be the rest!

The lines at the close of the introduction to "The Ring and the Book" are another very beautiful address to his wife.

In 1850 appeared "Christmas Eve and Easter Day," two poems that more than any other give an idea of the author's relation to Christianity. Of the profound moral import of his work there can be no question; but it is not always easy to see when his use of Christian ideas is dramatic

and when he is speaking in his own person. Usually, as in these pieces, there is a free use of Christian symbolism, treated in a broad and lucid way that carries the reader into the heart of the truth symbolized and makes all question of form superfluous. Such is the vision of the judgment in "Easter Day" and the dream in the dissenters' chapel of "Christmas Eve," expressing his sympathy with every mood that is sincere and earnest, with, at the same time, a keen sense of the humor of their manifestations; his regard for the substance of worship, not the elegance of its form; his faith in the soul's intuitions; and the conviction found in so many of his poems that "good shall be the final goal of ill"; that "the world's no blot—it means intensely and means good."

"Men and Women" (1855) includes more of the best and most characteristic of the shorter poems than any other of his volumes. "Childe Roland to the Dark Tower Came" is a striking instance of the power to project human feeling into nature; I know of nothing approaching it but Poe's description of the House of Usher. Every feature of the landscape gives some sinister suggestion of being a conscious creature, either itself suffering or watching in demoniac glee for the mysterious impending doom of the estray caught in the dreadful trap. "Bishop Blougram's Apology" is the ingenious argument of a worldly and comfortable churchman, in reply to one curious to know how he reconciles it with his conscience to profess belief in dogmas that can not possibly recommend themselves to his reason. The subject is treated with the humor most characteristic of Browning, which turns things inside out rather than plays over the surface of them. It is generally believed that Cardinal Wiseman is the original of the bishop. "The Statue and the Bust" is founded on a tradition concerning the equestrian statue of the Grand Duke Ferdinand I in the piazza of the SS. Annunziata, Florence, a strange story, whereof the moral, a surprising and unexpected moral, is drawn for us, contrary to his wont, by the author. In reply to an inquiry whether the bust, like the statue, had an actual existence, Browning answered that the story was all fiction, except that the lady was so shut up by a jealous husband, and that the duke placed the statue there as a memorial of his daily rides past the window. This volume also includes some of the most beautiful of the love poems—"One Word More," "The Last Ride together," "Love among the Ruins," the remarkable dramatic fragment "In a Balcony," "Love in a Life," and that exquisite expression of self-effacing love, "Misconceptions." "The Grammarian's Funeral," sketches a student of Greek, soon after the revival of letters in Europe, one who was content to go on toiling at the roots of things to lay the foundation of a great thing, letting youth pass by, careless of any results in this life.

Among the poems in this book most admired are "Andrea del Sarto," "Fra Lippo Lippi," "Master Hugues," "The Strange Medical Experience of Karshish," and "Holy-Cross Day."

In 1864 "Dramatis Personæ," another volume of short poems, made its appearance, containing among others the noble religious poems "Rabbi Ben Ezra" and "A Death in the Desert"; "Cal-

iban upon Setebos," a curious story on anthropomorphic theories of God, from the text "Thou thoughtest that I was altogether such an one as thyself"; "Abt Vogler," expressive of Browning's knowledge of and love for music; and the witty short poems "Dis Aliter Visum" and "Confessions."

"The Ring and the Book," a poem of more than 20,000 lines, issued in 1868-'69, is generally regarded as Mr. Browning's masterpiece. The story of its first suggestion is told in the Introduction. At a stall in the Piazza San Lorenzo, in Florence, Mr. Browning found one day, amid a mass of miscellaneous rubbish, a square old yellow book, part print and part manuscript, the title page of which he translates as follows:

A Roman murder-case:

Position of the entire criminal cause
Of Guido Franceschini, nobleman,
With certain four, the cut-throats in his pay;
Tried, all five, and found guilty and put to death
By heading or hanging, as befitting ranks,
At Rome, on February twenty-two,
Since our salvation, sixteen ninety-eight;
Wherein it is disputed if, and when,
Husbands may kill adulterous wives, yet 'scape
The customary forfeit.

This book, giving the whole history of the case—the evidence, the lawyers' pleas, an account of the murderer's execution, "the instrument of the definitive sentence," establishing the wife's innocence—all these documents found together, he bought for a *lira* (about eightpence). On this story he founded the poem. The name, as he explains, is symbolical, referring to the manner in which the facts of this old story are mingled with imagination in his work, just as the artificer, when he makes a ring of Etruscan gold, mingles with the pure metal an alloy that renders the gold manageable and is freed after it has served its purpose.

The story of the tragedy is told over and over again in the versions of various persons interested, first by the author, then by the half Rome that sympathizes with the husband, then by the half that sympathizes with the wife, then by a certain third party not decided; then follow the versions of the actors themselves, of the lawyers on each side, the Pope's review of the evidence; and lastly the husband is again heard from after his conviction. The portrayals of character, and especially the development of character in the innocent wife and the accused canon, touch the highest point of the poet's achievement in this, his favorite mode of expression.

This great epic was followed in 1871 by "Balaustion's Adventure," a story framing a translation of the "Alkestis" of Euripides, and the same year "Prince Hohenstiel-Schwangau, Savior of Society," in which an exposition and defense of his course are put into the mouth of Napoleon III—an argument for the policy of taking the world as it is found, and working toward the practicable, rather than throwing away effort on romantic ideals.

"Fifine at the Fair" (1872), treats of inconstancy in love in a way most puzzling to the reader, because there is so much humor in the treatment, and the argument proceeds from a character highly imaginative and singularly perverse and contradictory.

"The Red Cotton Night-Cap Country; or, Turf and Towers" (1873), has much the same general theme as "Fifine," the opposing attractions of the flesh and the spirit, but is treated in a markedly differing manner. It is founded on a series of events that took place in Normandy and Paris just before the date of the poem. The leading title, it is said, was suggested by Miss Thackeray, who spoke of Normandy as the White Cotton Night-Cap Country—a phrase the poet changed to the one in the title, in allusion to the tragedy going on beneath the simple pastoral life of the country. The second title is supposed to carry an allusion to the sensuous and the spiritual appeals to the allegiance of man, which forms the groundwork of the story. This work probably holds the lowest place of all the longer poems in the estimation of the majority of readers.

"The Inn Album" (1875), is also a story founded on fact—coarse and repulsive in its bare outline, but treated with great power and depth of analysis. "Aristophanes's Apology" came out in the same year; in it the Rhodian girl "Balaustion" appears again, with a translation of the "Herakles" of Euripides.

Next followed "Pacchiarotto, and how he worked in Distemper, and other Poems" (1876), and "Agamemnon," a translation from Æschylus (1877). In 1878 was published "La Saisiaz," an argument for the immortality of the soul, containing many exquisite passages, and more easily intelligible to the careless reader than the dramatic monologues. It was occasioned by the sudden death of a friend with whom Mr. Browning and his sister were spending a part of the summer of 1877 at La Saisiaz, a villa among the mountains near Geneva.

"The Two Poets of Croisic" (1878) is the story of some out-of-the-way happenings to two poets. One passage gives a hint of Browning's choice and treatment of his themes, and, therefore, seems specially appropriate for quotation. The first of the two poets has made a prophecy, which he believes was conveyed to him in a dream, in reference to the birth of an heir to a principedom, and the prophecy has been fulfilled, and this gives rise to speculation as to how a man might feel who believed himself to have been made the medium of a divine revelation:

How fortune fares

With such a mediocrity, who cares?
Well, I care—intimately care to have
Experience how a human creature felt
In after-life who bore the burden grave
Of certainly believing God had dealt
For once directly with him; did not rave—
A maniac, did not find his reason melt—
An idiot, but went on, in peace or strife,
The world's way, lived an ordinary life,
How many problems that one fact would solve!
An ordinary soul, no more, no less,
About whose life earth's common sights revolve,
On whom is brought to bear, by thunder-stress,
This fact—God tasks him, and will not absolve
Task's negligent performer! Can you guess
How such a soul—the task performed to point—
Goes back to life nor finds things out of joint?

The two series of "Dramatic Idyls" followed in 1879 and 1880, including the popular story "Clive." "Jocoseria," a volume of short poems, grave and gay, as the name implies, was published

in 1883, and in 1885 "Ferishtah's Fancies," parables in Eastern garb, least attractive in thought and expression of the shorter poems.

"Parleyings with Certain People of Importance in their Day; to wit, Bernard de Mandeville, Daniel Bartolis, Christopher Smart, George Bubb Dodington, Francis Furini, Gerard de Lairese, and Charles Avison, introduced by a Dialogue between Apollo and the Fates; concluded by another between John Fust and His Friends" (1887), was said on its advent to be darker than the darkest of his works; but by students it is now acknowledged to be worthy to rank with his best works, dealing with most curiously interesting problems and made vivid by some of his most eloquent passages.

A last volume, "*Asolando; Facts and Fancies*," was announced for publication on the day of his death. It is named from Asolo, the place of residence of the lady to whom it is dedicated, with some reference to the meaning of the word *asolando*, roving about in the open air. It contains songs and stories in various keys. Browning was always fond of odd stories about the popes, and here he has two, "The Pope and the Net" and "The Bean Feast." "Muckle-Mouth Meg" is a new version of an old Scottish story, the heroine of which was the daughter of Sir Gideon Murray, of Elibank. The little poem "Arcades Ambo," like "Donald" in "Jocoseria," may be commended to the attention of Bergh societies. Some of the poems seem specially significant, now that we know they were written so close to the coming of the great silence. Such are the Prologue, written Sept. 6, describing how the charm has faded out of nature for the poet in his age, but suggesting the consolation that lies in the significance of nature. In the same strain is "Reverie," where he expresses his confidence in the supreme love and the higher life:

Somewhere, below, above,
Shall a day dawn—this I know—
When Power, which vainly strove
My weakness to o'erthrow,
Shall triumph. I breathe, I move,

I truly am, at last!
For a veil is rent between
Me and the truth which passed
Fitful, half guessed, half seen,
Grasped at, not gained, held fast.

I for my race and me,
Shall apprehend life's law;
In the legend of man shall see
Writ large what small I saw
In my life's tale; both agree.

When sec? When there dawns a day,
If not on the homely earth,
Then yonder, worlds away,
Where the strange and new have birth,
And Power comes full in play.

The Epilogue closes with stanzas recalling "Prospice," quoted above—a song of triumph at approaching death, where he writes of himself as One who never turned his back, but marched breast forward,

Never doubted clouds would break,
Never dreamed, though right were worsted, wrong
would triumph,
Held we fall to rise, are baffled to fight better,
Sleep to wake.

No, at noonday in the bustle of man's work-time
Greet the unseen with a cheer!
Bid him forward, breast and back as either should be,
"Strive and thrive!" cry "Speed—fight on, fare
ever
There as here!

After the death of his wife, Mr. Browning never returned to Florence. He divided his time between Italy and England, usually passing the season in London, and going much into society, where his bright and genial manners made him a general favorite. The following description of his personal appearance was given by Bayard Taylor years ago: "In his lively, cheerful manner, quick voice, and perfect self-possession, he made the impression of an American, rather than an Englishman. His hair was already streaked with gray about the temples. His complexion was fair, with perhaps the faintest olive tinge; eyes large, clear, and gray; nose strong and well cut; mouth full and rather broad, and chin pointed, though not prominent. His forehead broadened rapidly upward from the outer angle of the eyes, slightly retreating. The strong individuality which marks his poetry was expressed not only in his face and head but in his whole demeanor. He was about the medium height, strong in the shoulders, but slender at the waist, and his movements expressed a combination of vigor and elasticity."

His home in Venice was with his son at the Palazzo Rezzonico, on the Grand Canal, where he was taken ill Nov. 27. His illness proved to be a serious attack of bronchitis, and in a few days an affection of the heart was developed; but Mr. Browning refused to believe that he was not growing better, and his friends were not prepared for the end that came so soon. Services were held at the Palazzo Rezzonico on Sunday, Dec. 15, in the presence of a large company of English and American residents, and foreign diplomats and officials. The coffin was carried on a barge to the central chapel of St. Michael's cemetery, whence it was taken to England. It was at first intended to bury the poet beside his wife at Florence, but the offer of a grave in Westminster Abbey from the Dean of Westminster, was accepted and Browning's resting-place in the Poet's Corner is not far from Chaucer's, recalling the lines of Landor:

Since Chaucer was alive and hale,
No man hath walkt along our roads with step
So active, so inquiring eye, or tongue
So varied in discourse.

Browning made it a rule never to speak in public; but Edmund Yates tells an amusing story of an occasion when he allowed himself to break this rule: "One Saturday afternoon, about twelve years ago, he was crossing Hyde Park, walking homeward, and stood a few minutes listening to an address from one of the pestilent atheistic lecturers in those parts. He waited till the fellow had finished, and then sprang on the vacated chair: 'Now, my friends, you have heard him, listen to me.' He held the attention of his strange audience for some ten minutes, a rapt oration flowing free with such extraordinary effect that the populace turned upon orator number one, and literally chased him from the neighborhood of his exploits."

Toward America and Americans Mr. Browning always displayed the warmest friendship. In an article entitled "English Opinion on the American War," in the "Atlantic Monthly," for February, 1866, William Michael Rossetti wrote: "Within my own personal circle of observation, I could name but one, or at the utmost two, besides myself, who in the main, with some variations, according to the changing current of events, clung to the cause of the North in its entirety. The first of these two persons is a painter of great distinction, and a man in other respects of very thinking and serious mind, well known by name, and partially by his works, to such Americans as take an interest in fine art. The second of the two is one of our very greatest living poets." Being recently asked if he were willing to tell, after this lapse of time, who these two persons were, Mr. Rossetti replies: "It was written so long ago that I have had to search my memory somewhat, in order to say who were the great artist and the great author of whom I spoke as having been stanch to the good cause of the Northern States. On reflection, I have little doubt that the artist was Holman Hunt (unless possibly it was Ford Madox Brown). The author (I am practically certain) was Robert Browning—a name I have always pronounced with reverence and love, and most especially so now that the world has to mourn his death."

By a great number of critics and readers, Browning is regarded as the greatest English poet since Shakespeare; but it is the opinion of others that, while the keenness of his insight, the profundity of his thought, his wideness of range, and his variety of subject, would entitle him to very high rank—perhaps the highest—yet his obscurity of expression, the carelessness and awkward mannerisms of his constructions, and the general inelegance of his style, forbid his assignment to so high a place. To still others, whose definitions of poetry make it an art appealing directly to the feelings and excluding all subtleties of thought and metaphysical inquiry, he seems scarcely to deserve the name of poet, but to be a subtle thinker throwing the results of his study, which are essentially prose, into a form more or less rhythmical, and thereby making them needlessly obscure. This may be said to have been the prevailing view of his work until within twenty-five years. He was deemed rather a poet for poets than for the generality of readers; and indeed a new school of poetic taste had to grow up before he could be regarded otherwise. Appreciation of his work has shown most striking progress during the past ten years; and he has probably more readers and admirers in the United States than in his own country. Publishers report a regular and steady call for his works, which have entered the list of "standards" on their records, whereas ten years ago a new book of his met with a very moderate demand, and the sale soon dropped to an insignificant figure.

The current criticisms on Browning's work are that it is obscure, rough, unmusical, digressive, redundant; that he lacked the faculty of rejection, thereby missing the artistic symmetry that was possible to him; that he dealt with themes too abstruse for poetry; all of which, except the last, are doubtless true in some measure;

the last, of course, being matter of opinion, and depending upon the critic's point of view. Much of the obscurity is due to little mannerisms of expression, inversions, and ellipses, to which the reader soon grows accustomed; but much also is due to condensation, and much to the unfamiliarity of his thought and the unusual themes with which he deals. A great thinker must have his own vocabulary and his own style, and one can not deal with metaphysical questions in the language of the wayfaring man. His careless versification is due in great part to the rapidity of his work in his later years, which is, perhaps, in part responsible for the frequent ugly and prosaic phraseology that is such a rock of offense to the lovers of smooth and elegant verse; but much of it seems due to a preference for the homely and the forcible in language. Yet while those who love his work best could well spare the obscurity and the roughness of phrase and word, they would not be willing to spare the digressiveness and the redundancy; for it is not the unmeaning wandering of mere diffuseness. Every digression throws some sidelight on the theme, or has some independent suggestion in it that adds to the wealth of ideas in the page. His thoughts are not like figures seen dimly because the light over them is dim; but rather like the figures in a vast, live, surging crowd, hard to see, not because every one does not stand full of life and action, but because it is hustled and jostled by the many other forms that crowd around it and disturb its hold on our sight.

The theory that true poetry appeals to the untutored sensibilities of men, that it is at its best among simple people and in primitive times, that it must decay among the refinements of a cultivated society and disappears with the advent of a spirit of metaphysical investigation and psychologic subtlety—such a theory has a place in the philosophy that regards the human race as fallen from a once high degree of perfection and ever lapsing farther away in its natural state from its original susceptibility to purity and truth. But it is out of place in that view of the plan of creation which regards the race as progressing by constant development to more complex adaptations of body and mind, and thence constantly more susceptible to the subtleties of a literature that deals with ever more delicate problems of human thought and experience. The influence of Browning has advanced as this philosophy has advanced in the thought of men and changed their point of view of the problems of life.

That it was open to Robert Browning to become a master of poetic expression and to deal with ordinary themes of poetry in a style both original and popular, is shown by his acted dramas and his best-known lyrics. While they speak to the immediate apprehension of an audience and appeal by action and incident to the general intelligence, it is never in a conventional way or by sacrifice of individuality. There are always unusual phases of character and complexities of motive that make the work peculiarly his own. But he chose rather to be a student of the strange and grotesque in character and conduct, to trace the intricate windings of purpose and go deeper into the moving forces of a man's strange acts than the man's own consciousness

could carry himself. He likes the inconsistent, to exhibit the triumph of the notions, the prejudices, the small vanities, the obliquities of moral sense over the plain, straightforward common-sensible forces of right and custom and interest. He takes us often to the point of view of the squinting vision, and shows us how the squint modifies the view. Yet this is not his chief characteristic. There is no writer who has approached the human soul on so many sides, portraying the influences of its environment while recognizing its essential kinship. Few have ranged through a greater variety of experience and emotion and united with so wide and close a sympathy such intense moral earnestness.

He seemed to grow impatient of the work of the dramatist so far as it consists in evolving character by varied situations and the influence of minor actors. He preferred to take some one man in some moment when the forces that have been gaining strength in the unnoticed workings of the thoughts and passions suddenly break out in the stress of some crisis and assert their irresistible power; and so the dramatic monologue became more and more his favorite form, because here he need concern himself only with the intricacies of the thought, the method of the spirit's dealing with itself. It is perhaps the soul of all great drama that it gives intellectual expression to the passionate and moral emotions of which the real man is as unconscious as of the circuits of his blood. Not dramatic or lifelike in the low sense of the word, because men do not analyze themselves in moments of supreme passion, it is in the higher sense most truly dramatic. It shows us the man not so much as he conceives himself, but in some degree as he might appear to his Maker, whose perfect knowledge of his heart includes perfect knowledge and sympathy with all the paths by which he has come to his present pass and all the obscure windings of his intellect and conscience.

BULGARIA, a principality in southeastern Europe, tributary to Turkey. It was liberated from Turkish rule as the result of the Russo-Turkish War of 1877, and constituted an autonomous principality by the operation of the Treaty of Berlin. The Prince is elected by the people and confirmed by the Sublime Porte with the consent of the powers. The office is hereditary. No member of a reigning European dynasty is eligible. The legislative power is vested by the Constitution of 1879 in a single chamber, the Sobranje or National Assembly, the members of which are elected by universal suffrage. Eastern Roumelia, now known as Southern Bulgaria, which was constituted an autonomous province of Turkey by the Treaty of Berlin, was united to Bulgaria by the act of the people, who deposed their governor in September, 1885, and proclaimed the union. Prince Alexander assumed the administration, and since then the Eastern Roumelians have sent representatives to the Sobranje, and the province has been governed as a part of Bulgaria, although the union has not been recognized by the powers, except that the executive authority was confided to the Prince of Bulgaria by a firman of the Sultan dated April 6, 1886, as the result of a conference of the signatory powers. Prince Alexander of Battenberg abdicated on Sept. 7, 1886, and after an interregnum,

during which a regency administered the government, Ferdinand, the youngest son of Prince Augustus, Duke of Saxony, and Princess Clémentine of Bourbon-Orleans, daughter of Louis Philippe, King of the French, was elected Prince by the unanimous vote of the National Assembly on July 7, 1887, and assumed the government on Aug. 14, without waiting for the consent of the powers, which was withheld on account of the objections of Russia. Prince Ferdinand has not yet been confirmed by the Porte and the signatory powers. He was born Feb. 26, 1861, and is unmarried.

The executive power is administered, under the Prince, by a council of six ministers, which was composed at the close of 1888 as follows: Prime Minister and Minister of the Interior, Stambuloff; Minister of Foreign Affairs and of Public Worship, Dr. Stransky; Minister of Finance, Natchevich; Minister of War, Col. Mutkuroff; Minister of Justice, Stoiloff; Minister of Public Instruction, Zivkoff. It was a composite ministry containing representatives of both political parties. The Conservative members, Stoiloff and Natchevich, in consequence of disagreements with the chief of the Cabinet, resigned and were succeeded about Jan. 1, 1889, by Tontcheff, late President of the Sobranje, as Minister of Justice and Sallbasheff, another adherent of Stambuloff, as Minister of Finance.

Area and Population.—The area of Bulgaria is estimated at 24,360 square miles, not including that of Eastern Roumelia, which is 13,500 square miles, making the area of the whole principality 37,860 square miles. According to the census of 1887, the two Bulgarias have a population of 3,154,375 persons, divided as to sex into 1,605,389 males and 1,548,986 females. Of the total population, 2,326,250 are Bulgars, 607,319 Turks, 58,338 Greeks, 23,546 Jews, 50,291 gypsies, 4,699 Servians and other Slavs, 2,245 Germans, 1,069 Russians, 544 French, and 80,074 of other nationalities. The population was divided in respect to religion into 2,432,154 Orthodox Greeks, 668,173 Mohammedans, 24,352 Jews, 18,539 Roman Catholics, 5,839 Armenian Gregorians, 1,568 Protestants, and 3,750 of other faiths. Sofia, the capital of the principality, had 30,428 inhabitants in 1887; Philippopolis, the former capital of Eastern Roumelia, 33,442; Rustchuk, 27,194; Varna, 25,256; Shumla, 23,161; Slivno, 20,893. There are 41 towns in North and South Bulgaria having more than 5,000 inhabitants. More than two thirds of the army recruits are unable to read or write; but now all children are compelled by law to spend four years in the state schools, of which there are 2,000, supported by a subvention of 2,000,000 lei, or francs per annum.

Finances.—The revised budget for 1888 makes the receipts 53,676,046 lei, and the total expenditures 61,707,944 lei. Of the expenditure, 23,225,424 lei were assigned to the Ministry of War, 7,940,443 lei to the Ministry of the Interior, 6,397,618 lei to the service of the public debt, and 10,903,596 to administration of the finances. The budget estimates for 1889 are 63,000,000 lei of revenue and 75,000,000 lei of expenditure.

In December, 1887, the Sobranje authorized a loan of 50,000,000 lei, of which 19,000,000 lei were to be applied to the construction of the Zarirod-Vakarel Railroad, the same amount to

the purchase of the Varna line, 2,000,000 lei to discharging debts contracted by Prince Alexander in supporting his office, and other sums to equipping the army. Bulgaria has undertaken to pay 140,000 Turkish pounds per annum to the Porte as the revised amount of the Eastern Roumelian contribution to the Turkish debt and 21,000 Turkish pounds in settlement of arrears. In the autumn of 1889 a loan of 25,000,000 lei was raised through Austrian and German bankers. The loan is guaranteed by a mortgage on the receipts and rolling stock of the railroads. The interest is 6 per cent. An American syndicate had previously contracted to lend the money on like terms, but the Bulgarian Government, as soon as the Austrian Länder Bank offered to take the loan, inserted new and unacceptable conditions in the contract, causing the Americans to withdraw just when they had made arrangements to pay down the first installment of 5,000,000 lei.

The Army.—Military service is compulsory. The forces consist of 12 infantry regiments, 3 of cavalry, 3 of artillery, having 6 batteries of 4 guns each, and 7 companies of pioneers. The army is organized as 3 divisions of 2 brigades. The peace strength of about 32,000 officers and men can be trebled in time of war. There is a small naval force, consisting of 3 ships of war, 10 gunboats, and 2 torpedo boats. The Bulgarian Government determined to arm its troops with the Mannlicher repeating rifle. The factory in Steyr could not, however, supply its orders till the next year or later, and, consequently, when Serbia began to increase her army it obtained 30,000 Berdan rifles from Russia and ordered 10,000,000 cartridges. At the same time it strengthened the fortifications at Slivnitza and elsewhere on the Servian frontier.

Commerce.—The imports in 1887 had a total value of 64,587,185 lei, and the exports were valued at 44,801,060 lei. Wheat and corn are the principal articles of export. Wool is exported to Austria and France. Other commercial products are tallow, butter, cheese, timber, and flax. Excellent wine is produced on the slopes of the Balkans. In the valley of Kezanlik, in South Bulgaria, a famous essence of roses is produced. Goat and buffalo skins from Bulgaria are in request among the tanners of Genoa and Marseilles. Iron and coal are mined in small quantities. The imports from Great Britain in 1887 were 21,832,638 lei in value; from Austria, 15,266,053 lei; from Turkey, 9,543,791 lei; from France, 4,113,121 lei. The chief port is Varna, on the Black Sea, where 563 vessels, of 359,645 tons, were entered, and 559 vessels, of 360,095 tons, were cleared in 1885.

Railroads.—The entire principality had 432 miles of railroads on Jan. 1, 1889. In December, 1888, the National Assembly authorized the construction of the Jamboli-Bourgas line and of a road from Kaspitchan on the Rustchuk-Varna line, through Tirnova and Sofia to Kustendil. The two railroads were estimated to cost 92,000,000 lei, and harbor improvements at Varna and Bourgas were expected to cost 6,000,000 lei more. The Jamboli-Bourgas line, which will be of great importance to the southeastern part of Bulgaria, was begun May 13, 1889, and was finished before the end of the year. Like the other Bulgarian railroads, it was built entirely by native labor. There were foreign engineers in the begin-

ning, but they were dismissed to make way for Bulgarians. The excavations and embankments were conducted by a regiment of pioneers, and wood and cartage was provided by the inhabitants of the districts traversed. The line has a length of forty-two miles. Bourgas the Bulgarians expect in time to make a naval harbor as well as an important commercial port. The harbor is being enlarged according to the plans of Sir Charles Hartley, an English engineer. The exports of South Bulgarian cereals, which have heretofore gone to Dedeagatch, will be carried much more cheaply and safely by the new route. Manufactures of western Europe, which have been brought till now from Constantinople, paying a double duty, can be imported direct. Near Bourgas, at Anchialo, are salt mines capable of supplying the entire country.

Posts and Telegraphs.—The state telegraph lines in 1887 had a total length of 2,710 miles. The number of messages in 1887 was 628,525. The number of letters, newspapers, etc., forwarded by the post-office in 1887 was 5,506,822. In 1888 there passed through the mails 861,650 letters, 173,830 postal cards, 83,950 registered letters, 1,720,450 newspapers and other printed matter, and 660,925 official letters and packages.

Treaty Negotiations with Serbia.—The Bregovo question was settled by the cession of a piece of land in exchange for the tract of meadow at Bregovo claimed by Bulgaria. The ratifications of this agreement were exchanged at Sofia on Jan. 4, 1889. Negotiations for a commercial treaty between the two countries were entered upon by invitation of the Servian Government in the autumn of 1888. The Bulgarian Government sent delegates to Belgrade, but did not act upon the project of a treaty prepared by the Servian Government until January, when the Servian Minister of Foreign Affairs threatened to withdraw it unless he soon received a reply. The draft treaty proposed by Serbia was accepted in principle by Bulgaria, but at the moment when it was to be signed the Servian delegates brought up a fresh question, which led to a rupture of the negotiations. They objected to the admission of Bulgarian cattle into Serbia before the conclusion of a veterinary convention. The Bulgarian representatives proposed that, for the sake of reciprocity, Servian cattle should be excluded in like manner from Bulgaria; yet to this proposal the Servians would not listen. In April the Bulgarian Government proposed to resume the negotiations and simultaneously to conduct negotiations for a veterinary convention in such manner that both arrangements might be concluded at the same sitting, thus insuring reciprocal treatment. But this solution was not acceptable to the Servians.

Politics and Legislation.—The Sobranje, in the last days of the session, which closed on Dec. 30, 1888, passed an act granting complete amnesty for all political crimes committed since Aug. 21, 1886, the day of Prince Alexander's dethronement. Excepted from the benefits of the act were Bendereff, Grneff, and Radko Dimitroff, the originators of that Prince's expulsion, and the instigators of the insurrections in Rustchuk, Silistria, Slivno, and Bourgas. At the same time that hundreds of hostile politicians were liberated from jail and as many more returned from

Turkey, Russia, Roumania, and Servia to agitate against the Government and that the overthrow of the Austrophile party in Servia furnished an incentive for Zankoffist activity, Prince Ferdinand and his headstrong Prime Minister provided their enemies with material grounds for complaint. The Bulgarian bishops, who are nearly all friends of Russia, accused the Prince of favoring a Roman Catholic propaganda. The Princess Clémentine, who had lately come into the country, brought with her, they said, Jesuits from Rome. The Prince offended the hierarchy by ordering the orthodox clergy to celebrate the festivals of his and his mother's patron saints, although they are not recognized by the Greek Church, and by lodging in the convent at Kaloferr, contrary to the religious law, and having Roman Catholic masses said in the convent. When the Holy Synod met in Sofia early in January, the members refused to call on Prince Ferdinand or M. Stambuloff, and voted a set of resolutions embodying their grievances. The Government, offended at this attitude, refused to admit that the assembly was legally constituted, on the ground that two of the members were not qualified to act as bishops under the ecclesiastical law, and accordingly declined to hold official relations with the synod, and directed the bishops to return to their dioceses. The prelates paid no attention to this order, communicated to them by the Minister of Public Worship, whereupon, on Jan. 11, they were conducted by a military guard to their homes. The bishops acted under instructions from the Bulgarian exarch at Constantinople, who is an instrument of the Russian ambassador. Sixty prominent laymen, not all of them Zankoffists, signed a memorial addressed to the head of the Bulgarian Church, entreating him to intervene and demand reparation or exact penalties for the attack upon ecclesiastical liberties. For this forty of the signers were arrested on the night of Feb. 5 and placed under heavy bail, while warrants were issued against the others. Among those arrested were the banker Geshoff and four other ex-ministers—Burinoff, Balabanoff, Molloff, and Pomeroff—Groseff, President of the Zaribrod-Vakarel Railroad, Slaveikoff, ex-Mayor of Sofia, and other distinguished men. Stambuloff petitioned the Greek Patriarch to restrain the exarch, although the independence of the Bulgarian exarchate is one of the dearly prized national rights, and when the Phanar refused to interfere, he threatened to depose the exarch, and transfer the exarchate to Sofia. The bishops decided to suppress the regular prayer for the Prince in the churches, but the inferior clergy generally obeyed the contrary order of the Government. The ecclesiastical conflict was not formally terminated till April, when, at the desire of the exarch, some of the bishops issued circulars enjoining the clergy to offer up prayers for Prince Ferdinand.

In January, the Prime Minister became involved also in a quarrel with the general staff of the army. The officers objected to the control exercised over them by Stambuloff and his brother-in-law Col. Mutkuroff, the Minister of War, and requested that their duties should be better defined and that they might have more direct relations with the Prince, their com-

mander-in-chief. They were informed that if they did not like their position they might resign their appointments and go back to their regiments; which all except the chief of staff, Major Petroff, accordingly did.

About the same time the Prince raised over his Konak a flag that was not the national standard—a golden lion on a red shield—but a combination of the Bulgarian symbols and the Coburg colors. The sight of this new emblem caused such indignation that the ministers persuaded the Prince to restore the tricolor.

For nearly three months after the return of the refugees, the Russophiles refrained from openly attacking the Government. On the last day of March a newspaper called the "Rhodope" made its appearance in Philippopolis, promising victory to the people with the help of Russia in their fight with the Government. The friends of the Government in the town seized and publicly burned the copies of the newspaper that they could find. The rest of the edition was confiscated by the authorities, and the editor was escorted across the frontier. Zankoff, from St. Petersburg, published an interview that he had with the Czar, who said that he was painfully moved by Prince Ferdinand's persecutions of the Orthodox Church, and that he hoped that the Bulgarians would drive out that unlawful Prince. Subsequently Zankoff established himself in Belgrade, where he gathered about him a knot of Bulgarian revolutionists who encouraged the Panslavist party that was organized in Eastern Roumelia, and, in conjunction with Servian associates, hatched plots against Prince Alexander. The Servian press poured out a torrent of abuse upon Prince Ferdinand and the Bulgarians, and the Servian Regents, acting under Russian influence, broke off the treaty negotiations abruptly, assumed an aggressive tone, inspired the press to threaten a war of revenge, recalled the Servian minister at Belgrade, who had been instructed by King Milan to attend Prince Ferdinand's receptions, sending a new agent who was directed to hold no intercourse with the Prince, and finally armed the third ban or Landwehr under the hollow pretext of putting down brigandage. Stambuloff replied to these menaces with counter-armaments, and in *communiqués* to the press hinted that in the event of another war the Bulgarians would not stop at Pirot. Through Zankoff, and afterward through the Russian ambassador at Constantinople, the Russian Government made overtures to Prince Ferdinand, promising that if he would retire Russia would cause no difficulties and refrain from all interference in the internal affairs of Bulgaria. The Bulgarian Prince and his minister both condemned the proposal, reminding its authors that similar assurances given as the price of Prince Alexander's abdication had not been carried out in the event. Themorganatic marriage of Prince Alexander at Mentone, on Feb. 6, to Johanna Loisinger, a singer in the Darmstadt theatre (she died in childbirth, Nov. 7), seemed to clear the way for the Russians, who had no more fear of the return of the former Prince. In August, the Czar took the extraordinary step of conferring a commander's cross of the order of St. Stanislas on Capt. Grueff, the chief ab-

ductor of Prince Alexander, who has since lived in Russia and organized the conspiracies of Bourgas, Silistria, and Rustchuk for the overthrow of the Bulgarian Government. The Bulgarian authorities, in order to diminish the danger of the plottings of banished conspirators in communication with malcontents at home, issued a decree requiring caution-money from Bulgarians going abroad. Ex-Ministers Radoslavoff and Ivantchoff, chiefs of the regular Opposition and probable successors of the Stambuloff ministry, published in their newspaper, the "Narodni Prava," a telegram sent to Prince Ferdinand, complaining of compulsion put upon voters by Stambuloff's officials during the last elections. For this they were tried and condemned on April 8 to a year's imprisonment for libeling the Premier and insulting the sovereign, but appealed from the decision of the court. In August, the semi-official "Plodiv" in Philippopolis, raised the question of the proclamation of Bulgarian independence, and committees were formed to work for this end and for the formal recognition of Prince Ferdinand by the powers. From London and Vienna Stambuloff received remonstrances against this perilous movement, and in consequence he disavowed the committees and put a stop to the agitation. The Bulgarian Government made earnest representations to the Porte to induce it to recognize Prince Ferdinand, an object that has the moral support of the English and Austrian governments, but is firmly resisted by Russia. Count Kálnoky at first disapproved the intention which the Porte is said to have formed to issue a circular note to the powers, inviting them to concur in the union of Bulgaria with Eastern Roumelia and in the formal recognition of Prince Ferdinand. After the Servian elections, however, the Austrian official press urged the Porte to persevere in its purpose. Prince Ferdinand left Bulgaria in October, taking the unusual step of nominating Stambuloff as Regent, as though he might not return. He was at Munich during the Czar's visit in Berlin, and Prince Bismarck is said to have made overtures to the Czar for a meeting and reconciliation with the Prince, but without success. While Ferdinand was absent, Prince Dolgorukoff appeared in Sofia, and attempted with lavish use of money to organize a revolutionary movement, but was expelled.

Postal Convention with Turkey.—Turkish and Bulgarian delegates signed a postal convention on April 29. The Ottoman Government agreed to satisfactory postal and telegraphic connections, and withdrew the annoying refusal to recognize Bulgarian stamps on letters mailed from places in Eastern Roumelia. The Turkish officials often lacked the geographical and linguistic knowledge that would enable them to distinguish such letters, and therefore the order to charge double postage on South Bulgarian letters as though they bore no stamps was not universally observed. The Porte, in recognizing Bulgarian postage stamps as valid in South Bulgaria, performed an act of neighborly good will without yielding its reservations on the political question of the amalgamation of the two Bulgarias. On this account the convention was concluded without any official formalities.

Suppression of Brigandage.—Brigandage has been stamped out except on the Macedonian frontier, where the robbers have been able to escape the pursuit of the Bulgarian military and obtain refuge and succor from their friends in the Turkish dominions. Recently the Turkish authorities have loyally co-operated with the Bulgarians. In the early months of 1889 they conducted a systematic hunt, and broke up a band nearly every week. At Serres, a band led by the dangerous outlaw Ilia was destroyed, and near Drama a larger company containing some of the robbers who had captured the railroad officials at Bellova. In the same district a troop of twenty-seven individuals was surrounded and captured. The Rilo band, which carried on its depredations in the vicinity of Bellova, was broken up by the Bulgarian authorities, but not before they had threatened to expel the monks of Rilo, who sheltered the bandits, and to tear down their monastery. Five robbers, of whom four were brothers, were sentenced to death by a court-martial, and two to imprisonment. These men pretended to be working in the interest of Russia. Two noted robbers—Yako and Omer—the latter a Mohammedan, were captured on Turkish soil, and handed over to be tried by court-martial for crimes committed in Bulgaria. Several young men of the town of Dupniza were taken by the gendarmes as they were about to seek the Turkish frontier to recruit the band of the robber chief Kosta Gurdshuklia.

C

CALIFORNIA, a Pacific-coast State, admitted to the Union in 1850; area, 158,360 square miles; population, according to the last decennial census (1880), 864,694; capital, Sacramento.

Government.—The following were the State officers during the year: Governor, R. W. Waterman, Republican; Lieutenant-Governor *ex officio*, Stephen M. White, President *pro tem.* of the Senate; Secretary of State, W. C. Hendricks; Comptroller, John P. Dunn; Treasurer, Adam Herold; Attorney-General, George A. Johnson; Surveyor-General, Theodore Reichert; Superintendent of Public Instruction, Ira G. Hioitt;

State Engineer, William H. Hall; Railroad Commissioners, A. Abbott, P. J. White, J. W. Rea; Insurance Commissioner, J. N. E. Wilson; Chief Justice of the Supreme Court, W. H. Beatty; Associate Justices, J. D. Thornton, John D. Works; J. R. Sharpstein, Jackson Temple, (who resigned in May, and was succeeded on June 25 by Charles N. Fox, by appointment of the Governor), A. Van R. Patterson, T. B. McFarland.

Finances.—The State Treasurer reports a balance in the treasury on July 1, 1886, of \$1,103,680.87; the total receipts for the year ensuing were \$5,454,419.97, and the total expenditures for the same time \$5,243,430.89, leaving a bal-

ance on July 1, 1887, of \$1,314,669.95. For the year ending July 1, 1888, the total receipts were \$7,194,693.59, and the total expenditures \$6,962,929.29, leaving a balance of \$1,546,434.25. A large part of the total receipts is derived from the following sources: From the tax on property for the year ending July 1, 1887, \$4,064,938.37; for the year ending July 1, 1888, \$5,134,103.75; from the \$2 poll-tax for the former year, \$305,643.23; for the latter year, \$316,744.02; from the sale of school lands for the former year, \$133,828.56; for the latter year, \$229,954.98; from the rent of wharves, tolls, etc., in San Francisco harbor, \$258,527.18, and \$274,819.91 in each year respectively. Among the expenditures for the two years are the following:

ITEMS.	1887.	1888.
Legislative Department	\$215,575 87	
Judicial Department	228,178 35	\$229,697 13
National Guard expenses	69,121 20	127,491 34
San Francisco harbor improve- ments	130,912 88	237,939 29
Deaf, Dumb, and Blind Asylum..	58,937 35	52,555 16
Adult blind	24,436 93	79,445 23
Insane Asylum at Stockton	199,824 85	200,583 23
Insane Asylum at Napa	174,432 64	210,526 39
Asylum for chronic insane	154,412 78	80,102 19
Home for feeble-minded children.	7,360 56	40,013 57
Transportation of insane	32,120 11	26,094 30
State Prison at San Quentin.....	199,824 85	420,478 06
State Prison at Folsom	135,535 49	107,920 32
Transportation of prisoners	28,699 36	20,528 71
Orphans, half orphans, and aban- doned children	231,266 44	230,014 75
Aged and indigent	173,148 89	142,908 03
Veterans' Home	9,663 95	27,271 21
State University	135,746 35	320,813 34
State Normal School, San José...	36,797 07	43,006 65
State Normal School, Los Angeles.	24,525 77	19,060 75
Support of common schools.....	1,982,442 18	2,180,160 27

The condition of the various funds held by the State, to which the receipts accrue, and from which the expenditures are made, is as follows: General fund—balance on July 1, 1886, \$62,247.51; receipts for year ensuing, \$2,347,668; expenditures, \$2,338,190.54; balance on July 1, 1887, \$71,724.97; receipts for year ending July 1, 1888, \$3,281,471.72; expenditures, \$2,853,383.89; balance on July 1, 1888, \$499,812.80. School fund—balance on July 1, 1886, \$358,103.73; receipts for year ensuing, \$1,892,737.87; expenditures, \$1,983,408.16; balance on July 1, 1887, \$267,433.44; receipts for year ending July 1, 1888, \$2,209,050.32; expenditures, \$2,198,541.81; balance on July 1, 1888, \$277,941.95. Interest and sinking fund—balance on July 1, 1886, \$229,019.53; receipts for year ensuing, \$418,582.66; expenditures, \$179,380; balance on July 1, 1887, \$468,222.19; receipts for year ending July 1, 1888, \$195,913.30; expenditures, \$420,630; balance on July 1, 1888, \$243,505.49.

The State debt remains unchanged, consisting of \$2,698,000 bonds of 1873 bearing 6 per cent. interest and due in 1893. These are held by the State in trust for its school and university funds. There are also \$5,500 of earlier bonds yet unpaid, on which interest has ceased. The balance in the sinking fund, \$243,505.49, is entirely insufficient to meet this debt at maturity.

For 1889 the total assessed valuation of the State was fixed by the State Board of Equalization at \$1,102,059,276, against \$1,064,802,225 for 1888. The same board established the tax rate for 1889 at 72 cents 2 mills on \$100, distributed

as follows: General fund, 49 cents 2 mills; school, 19 cents 3 mills; Grammar-School Course, 7 mills; interest and sinking fund, 2 cents; university tax, 1 cent; total, 72 cents 2 mills.

The rate for 1888 was 50 cents and 2 mills, the increase being due to the fact that the running expenses of the Government will be \$2,000,000 more this year than last. For 1887 the rate was 60 cents 8 mills.

Legislative Session.—The twenty-eighth legislative session began on Jan. 7 and ended on March 16. Both branches were controlled by the Democrats. It made provision for a new board of Supreme Court commissioners, to assume the duties of the present board when its term of office shall expire. The new board will consist of five members, to be chosen by the Supreme Court, holding office for four years, with a salary equal to that of the judges. An act was passed requiring proper drainage and ventilation in work-shops, factories, and mercantile establishments, that they shall be otherwise suitable and healthful for employes, and that seats shall be furnished for the use of woman employes. The Commissioner of the Bureau of Labor Statistics is charged with the duty of enforcing this act, and his powers and compensation are increased proportionately. Another act provides that no person under eighteen years of age shall be employed more than ten hours a day, or sixty hours a week, in any manufacturing, mechanical, or mercantile establishment, and that no child under ten years shall ever be employed in such establishments. An amendment to the State Constitution was proposed enabling cities having fewer than 100,000 and more than 3,500 inhabitants to frame their own charters, subject to the approval of the Legislature upon each of them as a whole. Cities of more than 100,000 inhabitants already have such power. A new law for the government of State prisons provides for a board of five directors, appointed by the Governor and holding office for ten years, who shall have the control of prisons of the State. It shall appoint all prison officials, and determine the number and salary of their subordinates, audit all claims for supplies and services at the prison, and make annual reports to the Governor. At least three of the directors shall visit the prison once each month, and carefully inspect the management. All contracts for supplies shall be made by the board, who shall advertise for proposals and let to the lowest bidder, if the price is fair. All work of convicts shall be on the account of the State, and at the San Quentin prison no articles shall be manufactured for sale except jute fabrics. For good behavior a deduction may be allowed in the term of imprisonment of two months in each of the first two years, four months in each of the next two years, and five months each year thereafter. The Governor, under his authority to veto separate items of appropriation bills, cut off the annual appropriation for the State Board of Silk Culture, on the ground that the board had accomplished nothing during its existence of four years, and that, under present conditions, California could not hope to compete with the cheap labor of India and China in silk production. A bill proposing to introduce the Australian ballot system was debated, but failed to pass both houses.

The legislation includes an unusual number of acts establishing new institutions. The sum of \$350,000 was appropriated for constructing a new asylum in Southern California, to be known as the South California State Hospital for the Insane. Another asylum was established at Ukiah, Mendocino County, to be called the Mendocino Insane Asylum; and provision was made for the levy of a special tax to raise \$175,000 in each of the years 1890 and 1891 for the purchase of land and for building. At Ione City, Amador County, was established the Preston School of Industry for Youthful Criminals, and \$160,000 was appropriated for land and buildings. At Los Angeles the State Reform School for Juvenile Offenders was established, with a construction fund of \$200,000. The sum of \$170,000 was appropriated for a site and buildings for the California Home for Feeble-Minded Children. Other appropriations were as follow: For completing the Normal School buildings at Chico, \$40,000; for erecting buildings at the State Home for the Adult Blind, \$155,000; for additional buildings at the Hospital for the Chronic Insane at Agnew's, \$205,000; for building and furnishing the Home for Soldiers' Widows and Orphans and Army Nurses, \$25,000; for constructing two infirmaries at the Napa Asylum for the Insane, \$28,000; for buildings at the Deaf, Dumb, and Blind Asylum, \$79,500; for improvements in and about the State Capitol, \$63,370. The total amount to be raised by taxation of property was fixed for 1889 as follows: For the General fund, \$4,822,970; for the School fund, \$1,893,500; for the Grammar-School Course fund, \$75,000; for the Interest and Sinking fund, \$200,000. For 1890 the general fund levy is \$3,199,040; the figures for the other funds are the same, and for the special Mendocino Insane Asylum fund, \$175,000 is added. Other acts of the session are collected below.

Changing the time for the meeting of presidential electors to the second Monday of January. [But this conflicts with the Constitution of the United States.—Editor.]

Enlarging the duties of the State Board of Horticulture, and requiring annual reports.

Punishing seduction under promise of marriage by imprisonment for not more than five years, or by a fine of not more than \$5,000, or both. A subsequent marriage of the parties is a bar to prosecution for the offense.

Providing for changing the boundaries of irrigation districts.

Imposing a penalty for fraudulently obtaining registration of cattle or other animals.

Directing the Surveyor-General to direct and establish by survey the eastern boundary of the State, near Lake Tahoe, adjoining Nevada, and inviting the co-operation of the latter State.

Declaring that any person who obtains food or accommodation at an inn or boarding-house without paying therefor, with intent to defraud the proprietor or manager thereof, or who obtains credit at an inn or boarding-house by the use of any false pretense, or who, after obtaining credit or accommodation, absconds and removes his baggage, shall be guilty of a misdemeanor.

Adding the 9th day of September to the list of legal holidays.

Providing that streams not navigable may be declared public highways for the floating of logs and timber.

Allowing towns, cities, or counties to establish a fund to provide pensions or benefits for the relief of aged, infirm, or disabled firemen.

Creating the county of Orange out of the southeastern part of Los Angeles County.

Authorizing the Governor to proceed with an investigation of the State Prison authorities, at the expense of the State.

Depriving cities and counties of the management of their public parks, by providing that all local boards of park commissioners in such places shall be appointed by the Governor, and regulating their duties.

Amending and revising the public-school law.

Providing for the burial at public expense of ex-Union soldiers, sailors, and marines, if they die without means to defray such expenses.

Granting to the United States certain tide-lands in Humboldt Bay to enable the Government to construct a breakwater and otherwise to improve the bay.

Imposing a penalty for the capture or destruction of blue crane, and for destroying the visit of any white or blue crane.

Providing for the appointment, in any county where it is deemed advisable by the county authorities, of a sheep commissioner, who shall seek to prevent or eradicate contagious diseases among sheep.

Raising the age of consent in girls from ten to fourteen years.

Appropriating \$100,000 to be used as a fund for the purchase of jute for the State prisons, said fund to be maintained by reimbursement out of the proceeds of the sale of manufactured goods.

Appropriating \$2,000 to enable the fish commissioners to import into the State, and to distribute for purposes of propagation, certain game birds, and providing a penalty for destroying such birds.

Establishing a Board of Harbor Commissioners for the Bay of San Diego, and giving it control of the harbor, wharves, and shipping of that bay.

Providing for publication by the State of an elementary book on civil government, to be used in the common schools in connection with other text-books heretofore issued by the State.

Providing for the formation of reclamation districts, for the purpose of reclaiming large tracts of swamp or overflowed land.

Authorizing the creation of bonded indebtedness by counties.

Imposing a penalty for furnishing intoxicating liquor to any person who is addicted to the inordinate use of such liquors, provided the person furnishing the liquor has been notified of the intemperate habits of the other.

To enable incorporated cities and towns to acquire, maintain, and improve public parks and boulevards.

Authorizing the State Board of Health to declare a quarantine against the entry of domestic animals from localities where contagious diseases exist.

Organizing the National Guard of the State into six brigades, each commanded by a brigadier-general.

Appropriating \$20,000 for the erection at San Quentin State Prison of a building for the criminal insane.

Providing for a commission to examine the rivers and harbors of the State, and to report plans for rectifying and improving them.

Granting charters to the cities of Los Angeles, Oakland, Stockton, and San Diego.

Assenting to the act of Congress establishing agricultural experiment stations in the several States, and designating the State University as the beneficiary.

Recognizing the Veteran's Home at Yountville as a State home for disabled veterans, and designating it as beneficiary under the act of Congress providing aid for such homes.

Education.—For the school years ending in 1887 and 1888 the Superintendent of Public In-

struction makes the following report concerning public schools:

Number between 5 and 17 years in attendance during 1887	185,523
Number attending during 1888	188,387
Increase	2,864
Number between 5 and 17 years who attended private schools during 1887	22,661
Number attending during 1888	20,768
Decrease	1,893
Number between 5 and 17 years not attending any school in 1887	66,268
Number not attending during 1888	61,345
Decrease	4,923
Number of all ages enrolled in the public schools during 1887	196,907
Number enrolled in 1888	207,050
Increase	10,143
Average daily attendance in 1887	129,297
Average daily attendance in 1888	132,227
Total number of schools in 1887	3,755
Total number of schools in 1888	4,002
Male teachers in 1887	1,803
Male teachers in 1888	1,056
Decrease	217
Female teachers in 1887	3,555
Female teachers in 1888	3,852
Increase	267
School-houses erected in 1887	147
School-houses erected in 1888	154
Districts formed in 1888	102
Value of school property in 1887	\$9,484,161
Value of school property in 1888	\$10,563,730
Increase	\$1,079,619

The securities held in trust by the State Treasurer for the School fund, according to the latest report by the State Comptroller are State and county bonds, \$2,975,500; cash awaiting investment, \$21,127.12; total permanent fund, 2,996,627.12. The interest of this permanent fund, together with the amount derived from State, county, and district-school taxes, constitutes the school revenue. The school revenue from all sources in 1887 was \$4,441,770.13; in 1888, \$5,132,413.67. Amount expended in 1887, \$3,889,888.17; in 1888, \$4,321,381.50.

Of the total school revenue, the amount raised by the State from its property tax, the poll tax, income of the permanent school fund, and other sources, and apportioned in 1887 to the schools was \$2,024,828.65 or \$7.43 for each child between five and seventeen years; in 1888 the sum of \$2,168,002.64 was apportioned, or \$8.01 for each child.

In 1885 the Legislature provided for the compilation and publication, at State expense, of a series of elementary text-books for the public schools. In accordance with this act and a supplementary act in 1887, the following named books of the series have been compiled, adopted by the State Board of Education, and are now in use in the schools of the State. One set of three readers, one speller and word analysis, one set of two arithmetics, one English grammar, and one history of the United States.

Charities.—The accommodations afforded by the State for the insane, at its two asylums at Napa and at Stockton, have for some time been insufficient. At the Napa asylum, which was designed to provide for 600 patients, there were in January, 1889, more than 1,500 inmates. The Stockton asylum was similarly overcrowded. The Legislature has made provision for two new institutions—the South California Hospital for the Insane, and the Mendocino Insane Asylum.

At the State Asylum for Feeble-Minded Children there were at the beginning of the year more than 100 pupils.

Insurance.—The report of the State Insurance Commissioner shows that in 1888 there were 132 insurance companies doing business in the State, as follows: Fire insurance, 104 companies; fire and marine, 12; marine, 33; life, 22; life and accident, 2; accident, 1; surety and accident, 2; surety, 1; steam-boiler, 2; plate glass, 2; title insurance, 1. These companies during 1888 transacted the following business: Fire insurance—amount written, \$352,831,786; premiums on same, \$6,087,041.48; losses paid, \$3,049,030.42; ratio of losses to premiums, 50.1 per cent. Marine insurance—amount written, \$134,273,834; premium on same, \$1,752,696.58; losses paid, 955,239.49; ratio of losses to premiums, 54.5. Life insurance—amount written, new policies, \$20,988,358; amount written, renewed policies, \$49,591,520; total, \$70,579,878; total amount of premiums, \$2,839,141.80; losses and endowments paid, \$1,205,106.91. Accident insurance—amount written, \$37,416,772; premiums on same, \$120,605; losses paid, \$35,087.17.

Of surety insurance there was \$4,382,381 written; steam-boiler insurance, \$1,902,750; plate-glass insurance, \$308,696.67, and title insurance, \$3,155,901.

Railroads.—The following table shows the assessed valuation of all railroads in the State for the years 1880 to 1887 inclusive:

Years.	Valuation.	Years.	Valuation.
1880	\$31,174,141 21	1884	\$50,746,500 00
1881	34,829,668 00	1885	49,035,750 00
1882	27,602,313 00	1886	48,051,100 00
1883	40,017,000 00	1887	47,677,453 00

The Central Pacific and the Southern Pacific roads, with their branches, constitute more than two thirds of the railroad wealth of the State. All the State and county taxes assessed upon these two roads for the above-named years, except so much as the companies saw fit to pay voluntarily, have been lost to the State after a long litigation, which was decided adversely to it in 1888.

Industrial.—No satisfactory statistics of the wheat crop for 1888 have been gathered, but it is variously estimated at from 830,000 tons to 900,000 tons. The season of 1889 has been favorable to cereals of all kinds, and the yield of wheat will exceed that of 1888.

The wool product for 1888 is estimated at 33,500,000 pounds, or nearly 2,000,000 pounds more than in 1887. Of this total 26,500,000 pounds were received in San Francisco, 3,500,000 pounds were shipped from interior points, 1,500,000 pounds were consumed by interior mills, and 2,000,000 pounds were of pulled wool.

The following statistics show the product for 1888 of the dried-fruit industries and of the bee-raising industry:

	Pounds.		Pounds.
Almonds	450,000	Nectarines, ble'ch'd.	60,000
Apples, sun-dried ..	100,000	Peaches, bleached,	
Apples, evaporated ..	250,000	peeled	400,000
Apricots, bleached ..	2,500,000	Peaches, bleached,	
Apricots, sun-dried ..	100,000	unpeeled	2,200,000
Beeswax	20,000	Peaches, sun-dried ..	2,000,000
Figs, sun-dried	75,000	Pears, sun-dried ...	25,000
French prunes	2,000,000	Plums, sun-dried ..	200,000
German prunes	100,000	Plums, bleached ...	40,000
Grapes, sun-dried ..	2,000,000	Raisins, 20-lb. boxes	915,000
Honey, extracted ..	3,000,000	Walnuts	1,000,000
Honey, comb	300,000		

The raisin product exceeds that of 1887 by over 100,000 boxes. Nearly half of the product

comes from the Fresno district. The year is notable for being the first in which shipments have been made to Europe, the goods being sold in London.

The vintage of 1888 is estimated at 17,000,000 gallons, distributed among the counties as follows: Napa, 3,000,000 gallons; Sonoma, 2,500,000; Santa Clara and Santa Cruz, 2,000,000; Alameda and Contra Costa, 1,500,000; San Joaquin, 300,000; Fresno, 2,200,000; Los Angeles and south, 3,000,000; Sacramento and north, 1,500,000; other counties, 1,500,000. Of this amount at least 4,000,000 will be distilled, producing about 600,000 gallons of brandy. The balance of 13,000,000 gallons will consist of dry and sweet wines. During the past year over 7,000,000 gallons have been exported, and there was a home consumption of five or six million gallons.

Farms.—After a careful examination and numerous inquiries the Governor finds that the average of the holdings of land in the State is as high as 300 acres. Of less than 36,000 farms there are more than 2,500 that have more than 1,000 acres each. The percentage of farms amounting from 500 to 1,000 acres in extent is higher than in any other State.

Mining.—It is estimated that California's mining industry will show an increase for the year of more than \$3,000,000 over the year 1887. This is largely due to the increased attention being paid to mining in Nevada, Placer, and Amador counties, where the interest has received considerable attention from foreign capital. The Los Burros district, in Monterey County, is coming rapidly to the front as a bullion producer. In the mines in Alameda and San Bernadino counties a fine quality of coal is being mined. The output of copper has largely increased during the year; many small mines in Arizona and Nevada have helped to swell the sum total.

The receipts of treasure at the port of San Francisco by Wells, Fargo & Co.'s express during the twelve months ending Dec. 31, 1888, were as follow: From the interior, \$20,983,483; from the north coast, 529,181; from Mexico (west coast), \$1,353,467; total, \$22,866,131.

Decision.—The State Supreme Court, in May, 1889, in the case of Central Irrigation District *vs.* De Lappe, rendered a decision similar to that rendered, in 1888, in Turlock Irrigation District *vs.* Williams, but covering additional questions affecting the validity of the Wright irrigation law of 1887. The court affirms its former decision favorable to the constitutionality of the act, and, by settling other minor questions, renders procedure under it safe and practicable. Up to the beginning of 1889, only four districts had been organized under this law, and only two had actually issued bonds; but it is believed that this decision will lead to a great increase in the number of organized districts.

CANADA, DOMINION OF. See DOMINION OF CANADA.

CAPE COLONY AND SOUTH AFRICA.

The Cape of Good Hope is a British colony in South Africa. The Legislative Council is composed of 22 members, elected for seven years, and the House of Assembly of 76 members, elected for five years, including 2 representatives of the Transkeian territories admitted to seats under an act of 1887. The right of suffrage belongs to

adult male citizens paying rent of £50 or receiving an annual salary of at least that amount. The number of voters registered in 1888 was 70,300. The Governor of the Cape of Good Hope from 1880 till 1889 was Sir Hercules G. R. Robinson, who had previously been Governor of New South Wales and of New Zealand. He was succeeded, on Aug. 1, by Sir Henry Brougham Loch, who was attached to Lord Elgin's mission to China in 1857-'60, having served in the army in India and the Crimea, and was Governor of Victoria from 1884 till he received his present appointment.

The executive power, except in imperial matters, rests mainly with the Cape ministry, since responsible government was conferred on the colony in 1872. The Premier and Treasurer of the colony is Sir J. Gordon Sprigg.

Area and Population.—The area of Cape Colony, including 14,511 square miles in the annexed territories, is 213,917 square miles. The estimated population of Cape Colony proper in 1887 was 1,001,096. Including the dependencies, Transkei, East Griqualand, and Tembuland, the total population was 1,377,213. The white population does not exceed 350,000. The capital, Cape Town, had 70,000 inhabitants in 1888. The number of marriages in 1887 was 5,017. Government immigration was stopped in 1886. The net adult arrivals in 1887 were 621.

Commerce.—The total value of imports of merchandise in 1887 was £5,036,135, and of exports, including diamonds, £7,719,385. The exports of wool were £1,674,931; ostrich feathers, £365,587; hides and skins, £366,660; copper ore, £577,053; Angora hair, £268,446; wine, £18,928; diamonds, £4,242,470. The colony had 1,260,000 head of cattle, 13,100,000 sheep, and 4,230,000 goats in 1888. About 5,586,608 gallons of wine and 1,390,052 gallons of brandy were produced in that year. Some of the wine districts have suffered greatly from the ravages of the phylloxera, and the services of a French expert have been engaged to combat the plague, Parliament having voted a considerable sum to carry out his recommendations. Trade has been stimulated by the development of gold mining in the Transvaal. Every branch of industry has recovered from the late commercial depression. The trade returns for the quarter ending March 31, 1889, showed an increase of ten per cent. in the imports, and of twenty-four per cent. in the exports over the corresponding period of 1887. Independent of the Transvaal gold fields, the increased value of the exports for 1888-'89 over the preceding year exceeded £1,000,000. The recovery of material prosperity, which is marked throughout South Africa, is largely due to the improvement in the wool and agricultural industries. The export of gold from South Africa, which was £69,543 in 1885, was nearly £1,000,000 in 1888, and for the first quarter of 1889 at the rate of £1,200,000 a year.

The number of vessels entered in 1887 was 629, of 848,018 tons, exclusive of coasting vessels, which numbered 1,216, of 1,875,622 tons. The number of vessels cleared for foreign ports was 601, of 818,062 tons, and coastwise 1,231, of 1,890,000 tons.

Railroads.—The Government railroad lines at the end of 1887 had a total length of 1,599

miles. There were besides 177 miles of private railroads. The Government lines cost £8,872 a mile, or altogether £14,186,452. The gross receipts in 1887 were £1,271,124, and the expenses £681,837. The Cape Parliament passed new railroad bills in the session that closed on Aug. 14, 1889. The various projects approved by the parliamentary committee on railroad extension and works involve an expenditure of £7,500,000, which must be obtained from London money-lenders. The works on the northern extension of the railroad from Kimberley to the border of the Transvaal Republic have been indefinitely postponed, and the Government has expended a considerable sum in improving the road to the Vaal river, in order to accommodate the traffic. The new railroads will connect the eastern and midland systems, a road will be built to the coal fields on the eastern border, and another will connect Simonstown on Simon's Bay, which is an important coaling station, with Cape Town. The Government is to purchase railroads from Worcester to Ashton and from Grahamstown to Kowie.

The Post-Office and Telegraphs.—The number of letters posted in 1887 was 7,435,968; of newspapers, 4,065,524.

The telegraph lines had a total length of 4,310 miles in the beginning of 1888. The messages in 1887 numbered 851,294. The receipts amounted to £54,205, and the expenses to £47,393.

Finances.—The revenue for the year ending June 30, 1887, exclusive of £142,174 of loans, was £3,160,658, and the expenditure £3,332,907. In 1888 the receipts amounted to £3,426,254. A third of the revenue is derived from railroads, and another third from customs. Of the expenditure the public debt consumes one third, and the expenses of operating the railroads take one fifth. The debt of the colony on Jan. 1, 1888, amounted to £21,194,286, besides £1,323,716 for harbor improvements guaranteed by the Government. The public finances were in a more prosperous state in 1889 than they had been for a long series of years. The docks and fortifications at Table Bay, which have been built at the expense of the colony, will be completed in 1890. The Government has decided to extend the harbor works in order to afford shelter for the imperial navy and for passing vessels. In view of the fact that the British Government uses the repair docks at Table Bay, and that the Simon's Bay works are intended for naval and defensive purposes, and also that the extensive fortified harbors at the Cape of Good Hope are intended to hold the alternative naval route to India open in case of the closure of the Suez Canal, an equitable contribution was asked from the imperial treasury. The home Government, however, adhered to the rule followed in other colonies, that the local Government should construe all the defensive works and the Imperial Government provide the armaments. Money was voted also for dredging and other operations at East London so as to facilitate the great additional trade that is expected when the proposed railroads are completed. After remitting taxation to the extent of £270,000, the Prime Minister estimated the revenue for 1889-'90 at £3,889,000, and the expenditure at £3,787,000. The accounts for 1888-'89 showed

a surplus revenue of £400,000, which was utilized to cover the deficits of previous years.

Change of Governors.—Sir Hercules Robinson was the prime mover in the annexation of Bechuanaland and the extension of the sphere of British influence to the Zambesi; yet, far from agreeing with the advocates of an imperial policy who prevailed on the British Government to expel the Boer settlers from Bechuanaland in the hope of peopling the country with British colonists, he is regarded at the Cape as the embodiment of the idea of "Africa for the Afrikaners," and is anxious to have Bechuanaland transferred to colonial rule as soon as possible. On taking leave of absence for a visit to England, he defined in a notable speech the policy that he desired to represent if he continued in his post. "From a very early period of my administration," he said, "I cast longing eyes upon the high, healthy, central plateau to the north of Cape Colony, which, as the gate to the interior of South and Central Africa, seemed to me of infinitely greater importance than the fever-stricken mangrove swamps on the east coast or the sandy, waterless fringe on the west. I accordingly devoted my best efforts to the acquisition of that territory. For a time my advocacy was as the voice of one crying in the wilderness; but the ultimate result has been that instead of the Cape Colony being, as it were, hide-bound, and shut in on the north by a foreign power, we have to-day in that direction—first, the Crown colony of British Bechuanaland, next the Bechuanaland protectorate, extending to the twenty-second degree of south latitude, and beyond it the exclusive sphere of British influence extending to the Zambesi. The true British policy for South Africa seems to me to be what may be termed colonialism through imperialism, in other words, colonial expansion through imperial aid, the home Government doing what the colonies can not do for themselves, having constitutionally no authority beyond their borders. There are three competing influences at work in South Africa. They are colonialism, republicanism, and imperialism. As for the last, it is a diminishing quantity, there being now no longer any permanent place in the future of South Africa for direct imperial rule on any large scale." He scouted the idea of a "South African India in the Kalihari," of a Governor-General "who is to administer, as in India, a system of personal, as distinguished from parliamentary rule, and round whom the several colonies and states are to rally." All the Imperial Government can do in South Africa, he thinks, is "by means of spheres of influence, protectorates, and Crown colonies, to gradually prepare the way for handing native territories over to the Cape and Natal so soon as such transfers can be made with justice to the natives and advantage to all concerned." The Cape Colonists had no cause to feel aggrieved, in his opinion, at the denial of their request for the annexation of British Bechuanaland; for the country is British, the trade route is secure, and the land is as available for every Cape Colonist who desires to purchase it at one shilling an acre as if it were already a part of the colony. The territory must sooner or later revert to the Cape, and meanwhile the British tax-payers are supporting the

burden of its administration and improvement. Colonialism and republicanism are the forces that are contending for future supremacy, and in the contest British colonialism is heavily handicapped by what the Governor calls "the well-meant, but mistaken interference of irresponsible and ill-informed persons in England," whose meddling is injurious in the long run to the natives, "while it makes every resident in the republics, English as well as Dutch, rejoice in their independence, and converts many a colonist from an imperialist into a republican."

Sir Hercules Robinson's remarkable speech, which stirred the indignation of a strong section of the Tory party in England, rendered impossible his return, and made it difficult for the Imperial Government to find a suitable man to succeed him. The Governor left for England on May 1, leaving the question of his return or retirement open until he had expounded his views to the British Government. His programme being rejected, he gave in his resignation, which was accepted at once. The entire press of Cape Colony applauded the sentiments of Sir Hercules Robinson. The imperialist party at the Cape, which was composed of English merchants and speculators who hoped for material advantages through the patronage of the Imperial authorities, has practically ceased to exist. On motion of the Prime Minister, both houses of Parliament unanimously passed a resolution expressing regret that the Governor's resignation had been accepted, and the hope and belief that the future policy of the Imperial Government would be in accordance with the views that he had enunciated, which were held by a vast majority of the people, "as a divergence from them would be detrimental to the interests of South Africa and of the Empire." After Sir Hercules Robinson's retirement from the governorship, the office was offered to several persons, and the Government was almost driven to the alternative of sending Sir Hercules Robinson back on his own terms, namely, that South Africa should be allowed to work out its own political future without English interference. Finally Sir Henry Loch, the popular Governor of Victoria, was induced to accept the posts of Governor of Cape Colony and High Commissioner of South Africa. Until his arrival, shortly before the end of the year, General Snyth acted as administrator of Cape Colony.

Customs and Railway Convention.—Delegates from Cape Colony, Natal, and the Orange Free State met early in 1889 at Bloemfontein to discuss the extension of railroads into the Free State and a customs convention. The delegates of the Cape and of the Orange Free State insisted on the scheme of a customs union adopted at a conference at Cape Town between the Colony and the Republic in 1888, and since ratified by the two legislatures. The Natal delegates were unable to agree to that basis of discussion, as the people of Natal desired to continue the low rates of duty that have given them an advantage in the trade with the Dutch republics and the native communities, especially in view of the existing commercial prosperity and growth of revenue. They therefore withdrew from the conference on the understanding that Natal might come in later if she should so choose.

After the withdrawal of Natal the Cape and Free State representatives revised the convention in accordance with the interests of their own governments irrespective of Natal. The conference separated on March 28. The customs union between the Cape and the Free State went into operation in July. The railroad from Orange river to Bloemfontein is expected to be opened for traffic before the end of 1890. It will probably be extended eventually to the Vaal, through Johannesburg to Pretoria, and thence into the gold regions beyond the boundaries of the Transvaal. The extension from Colesberg to Orange river, authorized in the session of 1888, was completed and opened for traffic in June. The continuation of the railroad to Bloemfontein had been authorized by the Orange Free State Volksraad in May. The line is being constructed by the Cape Government at the cost of the Free State. The Cape Government was deterred by protests of the South African Republic from proceeding with the construction of the northern extension authorized in 1888 from Kimberley to the Vaal river. President Krüger opposes this railroad not merely because he wishes to establish independent communications with the sea, but in order to prevent the British, in the event of another war, from putting down a force of regulars on the Transvaal frontier at the first outbreak of hostilities. The Natal Government pushed forward its railroad system to the borders of both republics.

Natal.—The maritime British colony on the east coast of South Africa possesses representative government under the amended charter of 1879. It is not ready to undertake the rights and duties of responsible government, which would throw upon it the burden and risk of defending its borders against the savage peoples on the frontiers. Negotiations on this subject are pending between the colonial and home governments. It is proposed to annex Zululand to the colony, with guarantees for protection of the rights of the Caffres and the reservation of land for their occupation.

The Governor is assisted in the administration by an Executive Council, composed of the Chief Justice, the officer commanding the imperial forces, the Treasurer, Attorney-General, and Secretary for Native Affairs of the Colony, the Colonial Engineer, and two nominated members. The Legislative Council, which shares the law-making power, under an act passed by the British Parliament in 1883, consists of thirty members, of whom 7 are nominated by the Crown and 23 elected by the counties and boroughs. The present Governor, who is also Governor of Zululand, is Sir Arthur Elibank Havilock, appointed in October, 1885.

The total population in 1887 was 477,100, consisting of 35,866 Europeans, 32,312 East Indians, and 408,922 natives. The European population has increased by 50 per cent., the Indian population by 100 per cent., and the native population by 32 per cent. since 1879. Durban, the capital, had 16,943 inhabitants on July 31, 1887, and Pietermaritzburg 15,767.

The imports by sea in 1887 amounted to £2,263,920, and the exports to £1,056,959. The main part of the exports, especially wool, which constitutes nearly half of the total, are the

produce of the neighboring Dutch republics, which absorb about one third of the imports. The export of gold during six months of 1888 was £191,439. The export of sugar from Natal declined nearly half between 1881 and 1887. The tonnage entered and cleared at the seaports in 1887 was 466,791. The principal crops are sugar and grain. Of the total area of the colony 2,000,000 acres are reserved for the natives, 8,000,000 acres have been sold to Europeans, and 2,778,000 acres remain the property of the Crown. There are large coal fields, as yet undeveloped, in the northern part of the colony, and iron ore of good quality has been found in their vicinity. Silver ore was discovered in 1889, near Greytown. Trade has grown rapidly since the gold discoveries in Witwatersrand. The returns for the first half of the year 1889 show an advance of one third in both imports and exports on the trade for 1888.

The revenue of the colony in 1887 was £816,680, and the expenditure £363,154, not reckoning £104,575 expended on public works and defrayed by loans. Next to customs, which yielded £231,411 in 1887, the largest source of revenue is the native hut tax, producing in that year £73,273. The public debt on Dec. 31, 1887, amounted to £4,035,126. During the six months ending June 30, 1888, the receipts of the Treasury from ordinary sources amounted to £205,034 and the disbursements to £363,154. There was a surplus of £431,000 at the end of 1888. The revenue for 1889 was estimated at £1,200,000, exceeding the estimated expenditure by £172,000. The increase in the revenue is chiefly due to the Transvaal gold fields, and in order to develop that trade as much as possible the Natal Government hastened to extend the railroads.

The length of the lines in operation on Jan. 1, 1888, was 220 miles.

The Legislative Council in the session closing on March 22, 1889, authorized the extension of the system to the Free State and Transvaal borders. The Natal Government has contracted to build the Free State railroad as far as Harismith, where the Republic will collect duties from July 1, 1889. The line to the Transvaal border is expected to reach Newcastle before the end of 1890, and Coldstream a year later. The Legislative Council sanctioned bills for raising £1,500,000 by a loan, for building the railroads.

The Legislative Council was convened again in April to consider the question of joining the Cape and Free State conventions. The Natal delegates at the Bloemfontein Conference had taken part in framing the railroad convention, and to this the Council gave its adherence. The Governor negotiated for a compromise after the dissolution of the conference without being able to obtain terms that were considered satisfactory for Natal. The Colonial Secretary therefore concurred with the resolve of the Council to adhere to a free-trade policy. The railroads are expected to support the Government of Natal without taxation, and, with Durban a free port, the merchants of Natal hope to monopolize the trade of the interior. The alliance between Cape Colony and the Free State was condemned as an unholy one, taxing other parts of South Africa for the benefit of the two governments. On May 7 the Legislative Council unanimously de-

clined to join in the Bloemfontein convention, and approved the proposal of the Natal delegates in favor of imposing a transit duty of 5 per cent. The import duties were reduced to a uniform rate of 5 per cent. *ad valorem*, the free list was enlarged by the addition of timber and other articles, and the Governor was empowered to make special reductions at his discretion on goods going to the interior. The new duties went into operation immediately. The Cape Parliament, in adopting the convention tariff, conferred on the Government similar powers of granting rebates in order to place Cape merchants on an equality with those of Natal. The Natal Government asked the colonial authorities in England to veto the convention, on the ground that it was injurious to the interests of Natal, and received a reply from Lord Knutsford refusing to disallow the customs union, which Natal had the opportunity to join but declined.

Zululand.—The entire Amazulu Kingdom was formally incorporated in the British Empire by proclamation on May 14, 1887. Its area is about 8,000 square miles. The population has greatly decreased as the result of wars and consequent famines. There are no returns regarding the number of Zulus remaining. The proclamation of British sovereignty was not followed by any attempt to set up an effective government. Usibepu, a *protégé* of the English and rival king, who had been driven from Zululand by the Usutus or adherents of the dynasty, and was replaced in power over a part of the country under the settlement of 1887, was emboldened to plunder the partisans of Dinizulu, the son of Cetewayo and inheritor of his father's royal dignity in the eyes of the Zulus, upon which Dinizulu collected his warriors to attack the followers of Usibepu. British troops put an end to the feud, and Dinizulu fled to the Transvaal. He surrendered himself after the arrest of his uncle Undabuko and others of his chiefs, and was placed under arrest on the charge of murder, which was afterward withdrawn, on Nov. 15, 1888, the day after his arrival in Pietermaritzburg. A special court was held at Etshowe, which passed severe sentences on all members of the Usutu party that were brought before it. Dinizulu appealed against a warrant transferring him from Natal to the jurisdiction of this tribunal, which tried his generals Undabuko and Tshingana and himself on the charge of high treason, and on April 27, 1889, found them guilty and sentenced them to fifteen, twelve, and ten years' imprisonment respectively. The court-house was surrounded by a military guard to prevent a popular rising when the sentence was delivered, and the court at once adjourned on disposing of the case. Usibepu was afterward brought before a magistrate for a murder that had been committed during the troubles. The charge was dismissed, but the Governor was not satisfied with this disposal of the case, and ordered a further investigation. The harsh sentences passed upon Dinizulu and his friends, the unequal treatment of Usibepu, and the dissatisfaction prevailing among the Zulus impelled the Aborigines' Protection Society and other friends of the natives to press for justice and mercy to the chiefs under sentence, a satisfactory apportionment of lands among the Zulus, and a readjudication of the rival claims

of the Usutus and their enemies. The garrison of British regulars kept in Zululand after the disturbances of 1888 numbered 1,000 men.

Bechuanaland.—The Crown colony of British Bechuanaland extends north of Cape Colony along the western frontier of the South African Republic, being bounded on the north and west by the Molopo river. West of the Crown colony the Bechuanaland protectorate extends over the Kalahari Desert to 20° east longitude, and north of it as far as 22° south latitude. The total area of both sections is 162,000 square miles. The Crown colony was annexed by proclamation in 1885, in accordance with a convention concluded with the South African Republic in 1884. It then contained 44,135 inhabitants. The area is about 45,000 square miles. Only a part of it is fertile, and only one third of the surface is populated. The European element, both British and Dutch, is gaining upon the native population, which has declined not only relatively but absolutely since the British annexation. The European settlers pay no attention to agriculture, depending by preference on the chance gains of transport riding. The native farmers are more industrious, but improvident. Large profits have been made by traders in buying grain from the natives at low prices and after a few months selling it back to them at much dearer rates. There is a large contraband traffic in brandy, which the Caffres help to conceal. Cattle-stealing, though still common, is being gradually stamped out. "Freebooting," or the unauthorized occupation of land, has ceased, and in consequence the border police force was reduced from 500 men to 350; but in 1889 it was again increased. The cost of administration exceeds the receipts both in the colony and the protectorate. The total expense of Bechuanaland up to 1889 has amounted to £1,500,000. In 1886 the revenue was £6,700, and the expenditure, including £84,253 for police, was £110,000. In 1887 the revenue was £9,690, and the expenditure £105,650, of which £79,000 was for police. In 1888 the expenditure exceeded the revenue by £66,000, of which £59,929 represents the police expenses. The chief sources of revenue are the tax of 10s. per annum on every native hut, and 10s. on each wife of a native. The post-office does not pay its expenses, notwithstanding a large demand for the stamps among foreign collectors.

The Grobelaar-Khama incident was adjudicated by the Imperial Government on the report of an investigation on the spot conducted by Sir Sidney Shippard, Deputy Commissioner for the Bechuanaland Protectorate, within the borders of which the attack on the Boer command by Khama's men took place. Sir Hercules Robinson had rejected a proposition of the Transvaal Government to refer the difficulty to the arbitration of the President of the French republic or the President of the United States. The investigation was begun on the Limpopo river in January, 1889. Gen. Joubert was present as commissioner for the South African Republic. The dispute was referred, after the evidence was collected, to the decision of Sir J. H. de Villiers. It was shown that Grobelaar was not a freebooter, but an accredited consul of the South African Republic returning to his own country, and

without entering into the question of the disputed boundary, the arbitrator decided that £200 should be paid by Khama annually to Grobelaar's widow as compensation.

The discussion of the future destiny of Bechuanaland has caused bad blood between the dominant Dutch party and the jealous advocates in England and in South Africa of British supremacy. The latter, represented by a South African committee, propose to preserve Bechuanaland and the regions beyond as a Crown colony and a field for British emigrants, who would act as a counterpoise to the anti-English population of Cape Colony as well as of the republics. The Afrikaner Bond retorted with a demand for the immediate incorporation of Bechuanaland in Cape Colony. The Cape Government has twice refused to take over the administration, and when finally it offered proposals to that end, the Imperial Government announced its determination to retain the charge of the country.

Bechuanaland has an elevation of from four to five thousand feet above the sea-level. Although much sickness prevails among the natives, it is due to poverty and unsanitary conditions of life. The country is considered healthful for Europeans. The land is adapted for cultivating maize and raising cattle. Corn, wool, hides, cattle, and wood are exported, and experiments are being made in the cultivation of tobacco. There is a telegraph line from Barkly West to Mafeking, the commercial center of the country. The seat of the administration is at Vryburg, the capital of the suppressed Boer Republic of Stellaland.

Matabeleland.—The sphere of British influence embraces the half of Khama's country that is not included in the protectorate and Matabeleland, extending from the Limpopo to the Zambesi. This region, which was declared subject to British influence in 1888, is bounded on the west by the twentieth degree of east latitude, and on the east by the Portuguese colony of Sofala. The entire area is 240,000 square miles. This includes Mashonaland, over which the Portuguese claim suzerain rights by virtue of treaties with former native rulers. In answer to a protest against the assertion of British claims over this region, the High Commissioner, in March, 1889, conveyed the information to the Portuguese authorities that Mashonaland, being under the rule of Lobengula, is within the sphere of British influence. The Transvaal Boers lay claim to a protectorate over Lobengula's country under a treaty with Moselikatze, whom they drove over the Limpopo out of his former country fifty years ago. This claim the British Government treats with indifference, and the Government of the South African Republic does not venture to insist upon it. The frontier Boers, however, many of whom have sold their farms to English mining speculators, covet the lands across the Limpopo, and are not likely to be restrained by interdicts of the British or of their own Government, if they can muster *commandos* strong enough to cope with the forces of Lobengula. In order to forestall the Boers and the Portuguese and establish a colorable claim to the most promising auriferous region in Africa, the British authorities encouraged the efforts of mining speculators to get a foothold in Loben-

gula's country. The High Commissioner gave a provisional consent to a concession obtained by a man named Rudd, acting for Cecil Rhodes and his associates in the De Beers Mine, whereby Lobengula granted to the syndicate exclusive mineral rights in all parts of his dominions excepting the Tati district, in consideration of an annual payment of £1,260 and a present of 1,000 Martini rifles, 100,000 rounds of ammunition, and a gunboat. The same reasons of public policy that led Sir Hercules Robinson to approve these negotiations caused the British Government later, when its position in Matabeleland was more secure, to open Lobengula's eyes to the insufficiency of the consideration for so vast a monopoly and to prompt him to repudiate the bargain. A flaw was discovered in the formalities that attended the grant, and on the ground that only two chiefs were present instead of the full council of *indunas* mentioned in the concession, and that there was no qualified interpreter to explain its import, the Matabele King demanded the return of the instrument. In the spring of 1889 Lobengula sent two of his chief *indunas* as envoys to England to ascertain the power of his protectors and to devise a scheme for the protection of his country against the enemies threatening it, with the help of the British. In May there were rumors of an expedition of seven or eight hundred Boers from the Transvaal, the Orange river territory, and Cape Colony, who intended to found new homes in a hilly district, salubrious and rich in game, where there were no black inhabitants, not far from the Zambesi. On Oct. 29, 1889, a charter, resembling in scope and character that of the old East India Company, was granted to the Duke of Abercorn, the Duke of Fife, and Albert Grey, directors for life, and others, among them Lord Gifford and Cecil Rhodes, forming the British South Africa Company, which is endowed with absolute control over the British protectorate and the regions beyond, as far as it may wish in the future to extend its operations. The company is empowered to establish civil government, to raise a force of police, to grant concessions for banks, railways, docks, telegraphs, etc., to hoist the British flag in its territories and on its vessels, to control the traffic in spirits, to enforce game laws, and in general to exercise all political and legislative authority. The British Government reserves the right to resume the public powers delegated to the company at the end of twenty-five years. The territory over which the company's principal field of operations extends has received the name of British Zambesia, comprising the Bechuanaland protectorate and the country occupied by Khama, Lobengula, and the Mashonas. The grantees who obtained rights over the Tati district from Lobengula in 1880 claim the right of autonomous administration. British Zambesia is said to be not only fabulously rich in gold, but to contain abundant deposits of half a dozen other metals. The forests are full of elephants and large game, and between the wooded hills are fertile valleys where grain and other agricultural products thrive with the easiest cultivation. Unfailing streams and the absence of the tsetse fly make the country valuable for stock-raising, and the climate is very favorable for European colonization. Whether the

company can reap the advantages of its extraordinary political and commercial privileges will depend on the disposition of Lobengula, whose jurisdiction over his hereditary dominions is not taken account of in the charter, but who has an army of 15,000 highly trained and valiant warriors.

Swaziland.—By the convention entered into at London with Portugal and the Transvaal in 1884, Great Britain bound herself not to establish any political control over Swaziland or Tongaland, and exacted an engagement to the same effect from the Transvaal Republic and from Portugal in regard to Swaziland. Both governments sent commissioners to delimit the Portuguese territory of Delagoa Bay from Swaziland and Independent Tongaland. The British Government recently sent a political mission to Tongaland to augment its prestige, but was precluded by the treaty from establishing a protectorate over that country, nor would it suffer the Portuguese Government, which exercises direct sovereignty over a part of the dominions of the Queen of Amatonga, to take the rest under its protection. The queen was impelled to pray for the protection first of England and then of Portugal by the sight of the fate of Swaziland. This country, lying west of the Lebombo mountains, 8,000 square miles in extent, is inhabited by about 60,000 natives, who form one of the most civilized branches of the Caffre race, and have become, since the discovery of gold, the prey of British adventurers who are beyond direct control of the British authorities. The king has not been able to exercise any degree of authority over the whites, numbering not more than 600, and the real power has been exercised by the white faction that happened for the time being to have the ear of the drunken tyrant. The cliques of Stoffel Tausen and of Ferreira, which were formerly uppermost, have been displaced through English influence, and a former official, Mr. Shepstone, has acted practically, though not in name, as British resident at King Umbandine's kraal, and has with some success kept freebooting Boers from acquiring the pastoral lands. Yet under the auspices of Shepstone, as chief adviser of the king, and a council of fifteen whites under his presidency, traders and miners have exploited the country without restraint. The entire surface of the kingdom has been divided into mining concessions. The king was induced to grant licenses and monopolies of all kinds, and even to sign away his revenues. Finally he determined to get rid of his false friends. The Shepstone party threatened the intervention of British troops, and with every artifice intrigued to retain their position. Umbandine turned to the Boers, and when ill and not expecting to live was on the point of making Gen. Krüger guardian to his son and heir. At last he dismissed Shepstone and appointed a man named Miller in his place as chief adviser. A request of the king for a British protectorate was refused by Sir Arthur Havelock. The Transvaal Government, which was likewise precluded by treaty engagements from annexing the country or establishing a protectorate, offered to assume the government of the whites in Swaziland, guaranteeing the king full independence and a recognition of all legal rights granted by him. Col.

Martin was sent to Umandine on a mission from the British Government, and Gen. Smit went as commissioner for the South African Republic, and on their recommendation the two governments decided to appoint a joint commission to settle the disordered affairs of the kingdom. The natives, as well as the majority of the white settlers, were willing that the country should be annexed to the Dutch Republic under guarantees of protection for existing rights. Sir Francis de Winton was sent out from England as special commissioner to act with commissioners of the Transvaal in the final settlement. Protests were raised in England against the decision of the Imperial Government to commit to the Boer authorities the task of introducing an orderly government, instead of making Swaziland a British dependency. The annexation of the country to the British Empire would, however, excite the jealousy of Portugal, as well as the indignation of the Boers, and the government of a colony remote from other British territory, inclosed on three sides by the Transvaal, and only approached on the other side through Portuguese possessions, would prove a difficult undertaking. Before Sir Francis de Winton reached the field of his labors Umandine died, Oct. 6. Forthwith the *indunas* restored Shepstone to the control of affairs, and Boon, the king's eldest son, was chosen as his successor.

Orange Free State.—The Orange River Republic, which was declared independent in 1854, has a Legislature, called the Volksraad, of 56 members, elected for four years by universal suffrage, a moiety retiring every second year. The executive power is in the hands of a President elected for five years. The present head of the State is Judge Reitz, previously Chief Justice of the Supreme Court of Cape Colony, who was elected on the death of Sir John Brand, and took the oath of office on Jan. 11, 1889.

The area of the Free State is estimated at 41,500 square miles. At the census of 1880 the total population was 133,518. The white population was found to be 61,022, of which number 31,906 were males and 28,116 females. The native population numbered 72,496, comprising 38,244 males and 34,252 females. Of the white population 11,111 were returned as agriculturists, and there were 68,881 colored servants. The imports and exports are not reported. The trade with foreign countries is included in the Cape Colony and Natal returns. The imports in 1886 are estimated at less than £1,000,000, and the exports at double that amount. The chief export is wool, of which article 36,000,000 pounds were shipped abroad in 1886, mostly through Port Elizabeth, Cape Colony. The export of hides and skins was estimated at £25,000; of diamonds, 99,000 carats, valued at £150,000; of ostrich feathers, £10,000. Ostrich culture is increasing. The country is adapted for grazing, but not for agriculture, as the supply of water is deficient. There were 6,000 farms in 1881, of the average size of nearly 4,000 acres. Only 114,916 acres were under crops. There were 114,916 horses, 464,575 cattle, 5,056,301 merino sheep, 673,924 Angora goats, and 2,253 ostriches. Diamonds, garnets, and other precious stones are found, and gold, which was first discovered in 1887. In 1888 quartz veins yielding three ounces

to the ton were discovered about thirty miles from Heilbron. There are also valuable deposits of coal. The telegraphs, connecting Bloemfontein, the capital, with Natal and Cape Colony, had a total length of 1,010 miles in 1888.

The chief sources of revenue are rents, a tax on transfers of land, the poll-tax, stamps, and trading licenses. The revenue in 1887-'88 was £210,074, and the expenditure £140,788. For 1888-'89 the revenue was estimated at £148,200, and the expenditure at £144,534. There is a public debt of £85,000, while the assets of the republic include land, buildings, various funds, and £70,000 of shares in the National Bank. A fund of £200,000 has been set aside for education, to which the State devotes considerable sums yearly. At the census of 1880 the proportion of totally illiterate among the white population over seven years of age was 2·6 per cent.

South African Republic.—The Transvaal Republic was founded by Boers who emigrated from Cape Colony in 1835 to establish an independent community on the Natal seaboard, and when that was annexed by Great Britain trekked into the wilds of the interior. The independence of the Transvaal was recognized by Great Britain in 1852. On April 12, 1877, it was annexed by the British Government, but in December, 1880, the Boers expelled the British administrator, and took up arms to regain their independence. After a successful resistance of an invading force, peace was concluded on March 21, 1881. Self-government was restored in respect to all internal affairs, but the Boers agreed to recognize the suzerainty of Great Britain, and to commit the regulation of their foreign relations to the British Government; also to pay the expenses of the British administration. By a convention signed in London on Feb. 27, 1884, and ratified by the Volksraad on Aug. 8 of the same year, the British Government gave up a large part of its rights of control over foreign affairs, and agreed to a change in the official designation of the State, which calls itself no longer the Transvaal Republic, but the South African Republic. The boundaries of the republic were defined in the same instrument, which has been modified by a supplementary convention permitting the annexation of the New Republic in Zululand. The legislative power is exercised by the Volksraad, consisting in 1889 of 39 members, one half of whom are elected every two years, the term of service being four years. The Witwatersrand gold field is represented by a single member, and the De Kaap and Komatie fields together by another. Naturalization can be acquired by foreigners after five years of residence by taking the oath of allegiance and paying £25. In 1889 the Volksraad adopted a new Constitution creating a second chamber which will not go into operation till it is ratified by the Volksraad in 1890. The members of the present Raad will form the first chamber. The members of both chambers must be Protestants, and must have resided in the republic and owned land in it for a period of fifteen years. In the new chamber the mining population and the material interests of the miners and owners of mines will be specially represented. The executive head of the republic is the President, who is assisted by a council composed of the Secretary of State, the

Commandant-General, and two non-official members elected by the Volksraad. S. J. Paul Krüger was elected President on May 8, 1883, and re-elected in 1888. The New Republic, now forming the district of Vrijheid, 1,600 square miles in extent, was incorporated in the South African Republic in 1888, after the Boers, by agreement with Natal, had relinquished all claim to the coast district of San Lucia Bay.

The area of the South African Republic is estimated at 112,600 square miles. The white population in 1888 was 80,000 persons, of whom 45,000 were Dutch. The native population is roughly estimated at 300,000. The political capital is Pretoria, and the chief commercial town Potchefstroom. The Transvaal produces wheat, tobacco of fine quality, and sugar, cotton, and coffee in quantities not yet considerable. The cultivated area in 1884 was not greater than 50,000 acres. Cattle, sheep, and ostriches are raised. Coal of good quality is mined to some extent in the eastern part of the Transvaal. There are iron mines, yet unworked, in the same district. Lead, silver, and tin have been found within the borders of the republic. Companies were formed in Natal in 1889 to work the silver mines. The imports paying duty in 1886 were £493,991 in value, and in 1887 they increased to £1,637,279, the contraband trade amounting probably to as much more. The exports, consisting of wool, cattle, hides, grain, ostrich feathers, and butter, are £700,000 or £800,000 per annum, besides gold and other minerals. The telegraph lines, connecting the chief towns with the systems of the Orange Free State, Natal, and Cape Colony, have a length of 720 miles. The finances of the State were in a crippled condition after the administration was recovered from the British, till the discovery of gold. Since then the receipts from mining and trading licenses have greatly increased the revenue, which was formerly derived from land sales, quit-rents, customs, the hut-tax, stamps, and transport dues, and was collected with difficulty from the Boers and the natives. The revenue in 1884-'85 was £161,595, and the expenditure £184,822. In 1885-'86 the revenue was £292,353, and the expenditure £213,975. In 1887 the revenue had grown to £668,433, and expenditures to £621,073, and for 1888 the ordinary receipts were estimated at £865,060, and expenditures at £611,988. The revenue for the first quarter of 1889 was double that of the same quarter of 1888, and at its close the surplus in the treasury was £461,000. The revenue for the year was expected to exceed £1,000,000. The receipts from mining licenses during the first quarter were £220,000 as against £94,000 in 1888. The public debt in 1884 was stated to be £396,255, consisting of the debt due to the British Government, which pays $3\frac{1}{2}$ per cent. interest, and is payable by means of a sinking fund in twenty-five years. In 1886 a debt of £40,000 was raised in Holland. The State lands were formerly valued at £400,000, but the discoveries of gold on those in the Barberton district has enhanced their value to several millions. The debt at the close of 1888, with deduction of the sinking fund, was not more than £276,000, while at that time the Government had a surplus of £274,130 in the banks.

The Gold Fields.—Gold has been found in paying quantities in nearly every part of the South African Republic as well as in the adjacent Swaziland and the regions north of the Transvaal. The mines have been imperfectly developed, yet they have already produced large quantities of gold. The gold is found in quartz lodes; but chiefly, at Witwatersrand and elsewhere, it lies imbedded in reefs of conglomerate rock, forming a hard, pebbly cement, the pebbles being waterworn. The reefs, which are sometimes double or treble, strike downward at angles varying from six to forty-five degrees. The rock is remarkably uniform in its yield of gold. The mines now in operation lie in the central Witwatersrand district, in the ridges stretching from Potchefstroom to Klerksdorp and the Vaal river, in the Heidelberg district, at Barberton near the border of Swaziland, and at Zoutpansburg. To protect the prospectors in the latter district, which is rich in gold, President Krüger had to begin operations in the autumn of 1889 against the chief Mohodo, who commands 30,000 fighting men. Another promising field in the Transvaal is Zecrust, in the extreme west, near the sources of the Limpopo. The gold exported from the Transvaal up to the end of 1887 amounted to £876,980. By 1888 more than 100 mining companies had been organized, with a capital stock of over £5,000,000. In November, 1888, the number of proclaimed gold fields in the Transvaal was twelve, the principal ones being Witwatersrand and Barberton. In the spring of 1889 the output of gold in the Witwatersrand alone was at the rate of 32,000 ounces a month. The gold exports from South Africa had risen by July to £137,000 monthly. The development of commerce incident to the new industry attracted many East Indians, who are already numerous in Natal. In the summer of 1889 the Transvaal Government decided to class British Indian merchants with Turks and Chinese as aliens, and ordered them immediately to leave the towns in its territory. The Indian Government protested against this decree as a breach of international obligations. The white immigrants connected with the mines were estimated in the spring of 1889 at 100,000, and they were still rapidly increasing. The Barberton field, which on its discovery attracted half the population of Natal, has been largely deserted for more promising districts, especially the Witwatersrand, where the town of Johannesburg is the most prosperous one in South Africa. A railroad from Pretoria to Johannesburg was begun, but the work has been intermitted. The Government has adopted a modification of the American mining laws. When a prospector applies for a mining concession on a farm, the Government surveyor first finds out whether gold is there. The farmer marks out his home farm and garden and a watercourse for his animals, and is also entitled to a mining claim. The rest of the property is, on a given day, handed over to the miners, who in the interval have staked out their claims and paid the mining license, half of which goes to the farmer and the rest to the Government. Many of the Boers have sold their farms outright to the companies. The miners are hired laborers, men of skill, earning £5 or £6 a week, though competition has recently brought down the rate of wages. The Dutch

natives are usually the most successful prospectors.

Alliance between the Republics.—Presidents Krüger and Reitz met at Potchefstroom in the Transvaal, on March 4, 1889, to consider the question of a federal union of the two republics. The proceedings of the conference were secret. The outcome was a defensive alliance, by which each state agrees to assist the other in the event of a war justly declared. This treaty, which is a distinct triumph of the Boer party throughout South Africa, is the result of the accession of President Reitz, who soon after his election gave the people of the Free State to understand that he would gratify their natural tendency to join hands with the neighboring republic, which was restrained by Sir John Brand. The President of the South African Republic had opposed the extension of the Cape railway system through the Orange river territory into the Transvaal, as well as the northward extension from Kimberley, until the national line to Delagoa Bay, rendering the Transvaal independent of all communication with Cape Colony, should be completed. The difficulties with the Delagoa Bay Company blocked the way to the realization of the national project except in the indefinite future, and, therefore, President Krüger in the railway treaty accompanying the treaty of political alliance gave a conditional assent to the building of the projected line from Bloemfontein to Pretoria. The question of a federal union of the two republics was referred to the Legislatures, and by the Transvaal Volksraad, where it was brought up in August, was approved, subject to ratification by the Volksraad in the following year. The treaties of alliance and of commerce made at Potchefstroom were ratified by the Free State Volksraad on May 24, and subsequently by the Transvaal Legislature. The political alliance, paving the way to federation and ultimate amalgamation, was sought at this time by the Transvaal Republic as a means of self-preservation. The Anglo-Saxon gold-diggers threaten to swamp the Boers. They are already more numerous than the adult Dutch inhabitants of both republics, and are still arriving from all parts of the British Empire and from the United States. The miners have been satisfied with the administrative and police regulations of the Government, and have not laid claim to any share in the political management of the country. A great many, however, are permanently settled in the country and will undoubtedly become burghers after five years of residence, and when that time comes the political control will pass into their hands, and they will be able to restore British rule, or to abolish Dutch as the official language, with all the privileges and advantages now enjoyed by the Boers. For this reason the Government is anxious to attract immigration from Continental Europe, and especially from Flanders and Holland. In 1889 the Director of Public Education, Dutoit, went abroad for the purpose of engaging teachers in Antwerp and Dutch seats of learning for a projected university at Pretoria.

The Delagoa Bay Railroad.—A railroad from Lourenço Marques, on Delagoa Bay, to the Transvaal frontier, fifty-six miles, there to connect with a line of the Transvaal Government

from Pretoria, with branch roads running to various important centers, was a project long cherished by the leading men of the Transvaal, but opposed by the British, who wished to keep the Dutch republics commercially tributary to their colonies. The Portuguese Government was nevertheless induced to agree to the project, yet British capitalists secured the concession, which was awarded on Dec. 14, 1883, to Edward McMurdo. The *concessionnaire*, an American citizen, organized a Portuguese company, but formed in London a construction company to build the line. There were unaccountable delays in making the surveys and in beginning the work of construction. A concession to the Transvaal Government to build a tramway for transporting material for its own part of the line was made an excuse for further procrastination. When the Portuguese Government finally itself began in 1886 to build the line, the company stepped in and undertook to carry out the work. Various modifications in the terms of the contract were allowed by the Portuguese Government, and the time fixed for the completion of the line, viz., Oct. 30, 1887, was extended. The unfinished line was opened for traffic in December, 1887. On Oct. 24, 1888, the Portuguese Ministry for Marine and Colonies fixed the term of eight months for the definite completion of the railroad up to the Pass of Incomati. The concession included a grant of 260,000 acres of public land, the right to cut timber from Government forests, and immunity from taxation of all mines and minerals on the company's property. The railroad was capitalized at £500,000, and 7-per-cent. bonds to an equal amount were issued. The Portuguese Government was spurred by the Boers to exact the completion of the road to the terminus within a reasonable time. In July, 1888, the Transvaal refused to act with Portugal in a delimitation of the frontier until the Portuguese authorities took steps to have the railroad completed. The British Government at one time, fearing that the railroad would pass under the control of the Transvaal Government and German capitalists, entertained the design of buying the line outright from the *concessionnaires* and only abandoned the intention when President Krüger gave an assurance that the Transvaal Government would not attempt to acquire the property. The deed of concession, according to an interpretation conceded by the Portuguese ministry in 1885, gave the Portuguese company the right to fix the tariff for freight and passengers. The Transvaal Government endeavored in vain to obtain from Col. McMurdo a satisfactory schedule of rates. As a means of pressure on the company, it delayed fixing the boundary line, as the contract requires the road to be built to the frontier. When the Portuguese minister sent his ultimatum to the company there were bridges and other works in a state of incompletion, ballasting was wanting throughout, and the company had done nothing on the last section of the line, alleging that the limits of the two countries were not fixed. It had built the permanent way as far as the original official plan went, which ended at a point eight kilometres from the pass in the Lebombo mountains that was assumed to be the frontier and which was so marked in a plan accompanying the minister's

letter. The Portuguese Government repeatedly urged the contractors to build the frontier section, and sent them a peremptory summons in June, 1888, and finally in October gave notice that June 24, 1889, would be the utmost limit. The company did little during the eight months of grace except to complain to the English and the American governments about the rainy season and floods that were of the nature of *force majeure*, and to accuse the Transvaal and the Portuguese governments of intriguing to seize the line, or to make a competing line of the temporary tramway in case the Transvaal could not dictate the tariff. Material for completing the line did not arrive till the middle of June. The British and the American diplomatic agents were instructed to ask for three months more of respite; but on the 29th of June the Portuguese Government confiscated the railroad. The employés of the company resisted under directions of the manager of the line, who was also the British vice-consul; but they were overpowered by the soldiery. By a royal decree the railroad was offered for sale for six months to the highest bidder, for the benefit of stockholders and creditors of the company. The Portuguese Government was warned by the British Foreign Office that it would be held responsible if British investors were damnified. The Portuguese Board of Directors, with ex-Minister Pinheiro Chagas at their head, resigned, and declared that they were entirely on the side of the Government of their country in its dispute with the company. In London indignation meetings were held, and the English Government was urged to demand the payment with interest of the debt nominally owed by Portugal since the wars of Napoleon. The Portuguese Government contracted with an engineer for the completion of the line, and operated the road pending the settlement of the question. It expressed entire willingness to submit the matters in dispute to arbitration according to the terms of the original concession. By acquiring possession of the railroad by forfeiture it obtained the right to settle the troublesome question of the freight tariffs, which for two years was a subject of contention between President Krüger and Col. McMurdo, who died a month before the seizure of the railroad. The Transvaal line, which will be built as soon as a scheme of freight rates can be decided on, will be worked by the Netherlands Company, managed by Germans, the capital of which was subscribed by Dutch and German capitalists, who each own about a third, while the other third is held by the Transvaal Government. President Krüger came to an agreement with the Portuguese Government regarding the railroad tariff and the continuation of the railroad by the Netherlands company. The convention was signed at Lisbon on Sept. 7.

Damaraland. — The German West Africa Company and the Colonization Society of Southwest Africa, which assumed to exercise the rights of sovereignty over Damaraland, otherwise called Hereroland, and Great Namaqualand, under a Schutzbrief or patent of the German Emperor, put forth no efforts to maintain order in the country, and fell into contempt in the eyes of the natives, who could not understand a protectorate which gave them no protection from their

enemies and refused to recognize the sovereignty of a few clerks and speculators. Several times the German officials were obliged to take refuge from robbers with the English at Walfisch Bay. The Colonization Society, which was formed to exploit the resources of the country, could make no profits from the copper mines, and the trading company was only kept alive by a small business in slaughtering cattle. The prospects of the German adventurers seemed to brighten when gold was discovered. By virtue of an imperial decree excluding all but German subjects from the right of digging for gold, the company made Stevens, who first found payable quartz, give up his mine and enter its service. A gold-digging syndicate was organized. German experts were sent out, and gold was found in seventy places, extending from Zwaartkop river to Cuncini, a distance of eight hundred miles. A shaft was sunk in one reef, with results indicating a true fissure. Mining plant and quartz mills were sent out. At this stage of the business a new obstacle arose. Robert Lewis displayed a concession signed by Kamaherero on Sept. 9, 1885, antedating the German treaty of protection, which was concluded on Oct. 22 of that year, whereby Lewis was granted a monopoly of gold-mining rights throughout Damaraland. Dr. Göring, the imperial commissioner for Southwest Africa, confronted Lewis and Kamaherero, who acknowledged Lewis's document, and declared a letter purporting to convey the same rights to the German Colonization Company in 1887, and other mining concessions, to be forgeries. He had simply given some Germans permission to prospect, on the condition that they should report to him the results. He had been accused, he said, of murdering Catholic missionaries, whereas it was Diehl, a German evangelical missionary present at the conference, who led a party to the house of the rival missionaries, broke down their door, and drove them away into Ovampoland, where they were killed. Tyinyonge, the commander of Kamaherero's warriors, and Solomon Aponda, his chief councilor, bore witness to the genuineness of Lewis's deeds, and said that the nation would uphold them. This promise was kept, and from that time the head chief of Hereroland and his people treated the Germans as enemies. A report of Ludwig Conradt, agent of the West African Company, declared the arrogant behavior of newly arrived Germans toward prominent Hereros to be partly the cause of the ensuing disorders. The Colonization Company had assigned a sum for police, and had sent out German non-commissioned officers to drill a native force; but no reliable men would enter the service. Lewis organized several companies in Cape Town, where people were inclined to give substantial support to his enterprise, if only for the purpose of worrying the Germans and driving them from South Africa. After Dr. Göring's interview with the Herero chiefs he and the entire *personnel* of the Gold Syndicate, the Mining Bureau, and the Colonization Company fled from Otyimbingue, and took refuge at Sandwich Harbor. The Hereros subsequently drove all Germans, including the missionaries, out of their country, and seized the property of the colonists and a large store of arms and ammunition belonging to the imperial commissioner, as well as

all his records and papers. The entire stock of the merchants was also plundered. German gold-seekers in all parts of the country escaped to the coast, except some in Namaqualand, who found little to reward their search. The German Government refused to help the colonial adventurers out of their difficulty by sending a military expedition against the Hereros. Prince Bismarck said that if Lewis's patent from Kamaherero was of prior date to the formal act of occupation, it was probably good in international law, and that at any rate it must be passed upon by a German court.

In Namaqualand, where Hendrik Hoort, chief of the Hottentots, is engaged in a war for the subjugation of the Red Namas and their chief, Manasse, German missionaries remain, and exert some influence. Hendrik has induced the Bastards living with the Namas to join him, and in a battle near Hoagenas, Manasse, who had lately acknowledged the sovereignty of Germany, was badly defeated. The Hottentots trade plundered cattle with the Bechuanas for breech-loading rifles and cartridges, and when Dr. Göring issued an order prohibiting the importation of arms, Hendrik sent word to the German commissioner that he could supply him with ammunition when his own gave out. During 1888 the Namas and Damaras exported one thousand head of cattle into Bechuanaland. The intermediation of the missionaries saved the Nama tribe from annihilation. After the abandonment of the German stations in Damaraland an official was appointed to look after German interests in Namaqualand, Dr. Göring's secretary, Nels, being selected for the place, and Aus, between Angra Pequena and Bethany, fixed upon as his residence.

CATTLE, IMPROVED BREEDS OF. Cattle are technically said to be of improved blood when a known and registered lineage can be given in testimony of their purity of strain and descent, and of their undeviating perpetuation of ancestral excellence. Only those that fulfill the conditions of this definition are known to experts as pedigree stock. There are two distinct classes of the improved neat cattle—one known as beef stock, and the other as intended for dairy purposes. Those of selected blood in the first class include the Shorthorns or Durham, Herefords, Aberdeen-Angus, Galloways, Sussex, West Highland, Devons, and Red-Polled cattle. The Shorthorns, Devons, and Red-Polled have also dairy qualities. The second class includes the Jerseys, Guernseys, Ayrshires, Holstein-Frisian, and Brown Swiss. This comparatively small number introduced into the United States—in proportion to the stocks cultivated in other countries—is due to the growing care and public-spirited intelligence shown by dealers and fanciers in judicious importations from the best stock in Europe, the reasons being best determined by a study of the history of each breed in its order of preference.

The Shorthorn or Durham.—This race is earliest traced to the county of Durham, England. It is of modern popularity, and is cultivated in excess of all other kinds. Little mention is made of it until the close of last century, and then there was a conflict of opinion in regard to its origin. Along the banks of the river

Tees, in Durham, and the district of Holderness, in Yorkshire, these animals were supposed to have descended from cattle brought by the Danes into old Northumbria from their conquered provinces of Jutland, Holstein, and Utrecht. The superiority claimed for the stock of the Tees-water valley is based on the fact that the old blood there remained purer for their capabilities of being improved upon by the later ingrafting about 1640, when some Holstein cattle were imported into Holderness. The Shorthorns are altogether white or entirely of one rich red hue, red and white in distinct patches, or an intermingling of the red and white into a picturesque roan. In frame they are massive and deep-chested and are parallelogrammed from every point of view. Their broad backs are straight lined; their heads handsome and well set; their horns wax-colored, smooth, sharply curved, and darkly tipped; their cream-colored muzzle is delicately fine; their eyes are prominent and clear and have the calmness of docility; and their legs are short, clear cut in outline, with small hoofs. As a race they present a symmetrical though more rotund appearance than others, their especial superiority consisting in their ability to produce flesh with the least amount of waste while retaining a good carriage and high-bred air. They readily adapt themselves to their environment and thrive on most soils, and with good management are profitable either as dairy stock or as grazers. In England, the pioneer herds of Shorthorns were gathered by the Messrs Milbank and Croft, in 1738; and, notably, by the Duke of Northumberland, the Colling brothers, and Mr. Bates, of Kirklevington. The finest later herds are distributed among several distinguished English breeders, among whom the Duke of Devonshire is one of the largest, chiefly of the Bates bloods. They were introduced into Virginia by a Mr. Miller, and in 1797 taken to Kentucky by Mr. Patton. The first Wade Hampton is credited with an importation into South Carolina as early as 1782. Cornelius Cooledge, of Boston, Gorham Parsons, of Brighton, Mass., and other public-spirited gentlemen of Boston, imported fine specimens into New England between 1818 and 1820. These were preceded in 1817 by an importation of several good ones of both sexes by Col. Lewis Sanders, of Kentucky. The death of Thomas Bates, of England, in 1849, scattered his famous herd, and some of the noblest specimens of his "Oxford" and "Dutchess" tribes were imported by Samuel Thorne, of Dutchess County, N. Y., Lewis G. Morris, of Fordham, N. Y., Ezra Cornell, of Ithaca, N. Y., and Gen. James S. Wadsworth, of the Genesee valley, N. Y. All these cattle brought high prices, but the most notable sale of Shorthorns in America occurred at the dispersion of the herd of Samuel Campbell at New York Mills, Oneida County, N. Y., when several cows were sold for more than \$25,000 each, part of them to English breeders, who took them to England. Successfully improved types of the Dutchess family, as imported from England, have been returned to that country for the herds of the Earl of Bective, and have become famous there within recent years. The American Association, devoted to their culture, has grown to great wealth and influence. Hon. Lewis F. Allen, of Buffalo, N. Y., began the publication of their

herd book in 1846, following that first issued in England in 1822, and continued it to an issue of twenty-four volumes in 1883, when it was purchased by the Short-Horn Breeders' Association, and it has since been published at Chicago. Each entry is given its own number, and it retains that number always, regardless of the number of additional entries, so that any one can refer accurately to the "herd-book number," and obtain any desired information. The Shorthorns mature early and the live weight of mature cattle is from 14 to 20 hundred-weight. The annual averages from dairy tests, kept by the Anglo-Swiss Condensed Milk Company, at Cham, Switzerland, from 5,000 to 6,000 Shorthorn cows gave 4,688 pounds a head.

The Herefords.—The Herefords were bred in the county in England from which they derive their name. Their purity of strain gives them a high superiority and distinction, their excellence being the result of care and selection. They are also found in the counties surrounding Hereford, and in the Welsh country adjoining. No authentic history of their origin is obtainable, but they are supposed to be derived from Flanders or Normandy. That part of their native county that is north of the river Wye was part of the Welsh country, where a tradition identifies them as the cattle alluded to in an historical incident related of the tribute paid in the reign of Howell the Good in the tenth century. Since their first prize, given them by the Smithfield Club in 1799, these cattle have been of four distinct and variously marked types, until the first white face appeared in the herd of Mr. Tully, of Huntington, near Hereford, in 1750. These four types were still entered when the Hereford herd-book was opened in 1845; but since that date, the Hereford stock have attained a standard uniformity of description as characteristic as it is unique. Their color is a decided red, of a medium tint on the straight wide back and the upper part of their short legs. The crest and mane, the entire face, deep, full chest, lower part of the body and legs, and the tip of the tail are a clear white. In the middle of the chest and on their eyes is a small spot of the red tint. Their heads are small in contrast with the massive curves and proportions of their bodies. The muzzle is fine and white; the eye clear, full, and placid; the coat is fine and soft, with a decided waviness; while their horns are yellow, dark at the tips, and project straight from the head. The Herefords are known as a distinctly high-class grazing tribe, their dairy qualities being generally neglected and overlooked, although it is palpable that this results from lack of attention, their characteristics being so persistently marked in other respects, and their influence so invariable when allied with other blood. In England, celebrated herds of Herefords are owned by the Queen, at Windsor, and by the Earl of Coventry. An importation of two cattle into the United States was made by Henry Clay in 1816-17, for his farm at Ashland, Ky., and some were sent to friends in Massachusetts, a few years later, by Admiral Coffin of the British navy; but the earliest importation of any extent was made by Erastus Corning, of Albany, N. Y., in 1841. Many importations of them have been since made, and now there are

numerous herds in different states. The constitution of the Hereford stock being essentially robust, they suffer little in change of locality and have been successful in every climate, ranking at maturity with the rival Shorthorns. Their herd-book has, as a general rule, the list only of first-prize-winners at agricultural shows, thus establishing their merits as being great size, good feeding, early maturity, and combined strength and activity, with docility.

The Aberdeen-Angus.—These cattle are principally found in Angus, Forfarshire, and in Buchan, Aberdeenshire, Scotland. They are familiarly styled "Doddies," "Polled," "Humlies"—humble-cattle, as they have no horns and are peaceable. They were derived originally from the southern part of Norway and from Iceland, where their type is not uncommon. Their earliest repute in Scotland was acquired from the herds of the Earls of Strathmore and Panmure, about 1787, although their fame as "Angus-Doddies" is first associated with the name of Hugh Watson, of Keillor, in 1808. From this date they gained rank as improved cattle. The Highland Society show in 1848 gave them high honors, and they carried off numerous prizes at the Paris Exposition in 1878; and again, at the show of the Highland Society in 1883, a fine specimen of this variety was sold for \$1,340, and a young calf for \$2,100. Their contour and description follows, in good points, the essential character of their rivals, the Shorthorns and the Herefords; but they are more compactly built, and have longer legs, and in fineness of bony structure resemble more closely the Devons of England. Their color is almost always black; but the soft and silky coat shows sometimes spots of red, yellowish white, or roan. Their well-set heads have tufts of hair set high between their lively ears, which seem larger and thicker from the lack of horns. Their eyes are full and mild, and the muzzle a little coarse, and they resemble the Galloways in being black and hornless. They thrive on poorer soil than most cattle, and repay any care given them. Freedom from tuberculosis is said to be peculiar to this stock. They belong more especially to their class than either the Shorthorns or the Herefords, and commonly weigh at maturity from 1,200 to 1,500 pounds, and special weights at three years have scaled from 17 to 19½ hundred-weight. Their first herd-book was issued in 1862, and remodeled in 1869, under the rules guiding the Shorthorn organization, and the later volumes show a steadily increasing progress toward especial excellence.

The Galloways.—These are a native race from the county of Galloway, Scotland. They belong to the polled tribe with no horns. Any symptom of anything tending to confirm the tradition of their having once been a race with horns is only a trace of possible alienation, the race itself being native to the soil and of great antiquity. The moors and highlands of the south have been their home for two thousand years. Their marked character is their own, and their improved condition is in no way due to any infusion of foreign blood, but results solely from intelligent and systematic management of the original stock and attention to diet. The Galloways have always had a reputation as a hardy

race, having been inured to exposure, and able to subsist on a limited amount of food. There are few changes in their general description. In color they are of a uniform black, with occasional flecks of red brown, or dun color. Their coat, though glossy and soft, is somewhat thick; but this results from exposure, and only tends to added delicacy in the food product. They are more compactly built than the Aberdeens, and are especially full and round. Their heads are rather heavy, with wide foreheads, tufted and knobbed between their large up-pointed ears. They have fine muzzles, straight backs, and short legs of great muscularity, and their eyes are dull and drowsy. The Galloways have been known in the United States for the past hundred years, and in Canada since 1850. They are readily acclimated in a new country, and their size is regulated entirely by their treatment, so that variations may be traced to lack of proper nourishment. They can be matured in three to four years, and are generally quoted at the best figures.

The Sussex.—These cattle are chiefly restricted to the downs of their own county of Sussex, and the counties of Kent, Hants, and Surrey, in England. It has long been supposed that they belonged to the race of South Devons, in the neighboring county of Devon. They have coarser attributes than the northern Devons, and were used chiefly as working oxen until recent years, when their inherent qualities were recognized as susceptible of the greatest refinement. They have gained so much of nobility that they are much sought for, and give promise of an important future. They are of an even red color, darker than the Devons, and approach the Herefords in symmetry and frame. Their coat is long and silky; the eye large and full; the forehead broad; muzzle wide, thinner between the nose and forehead; and their horns are long, but fine and delicately tipped. Their average weight at maturity is not attained until they are four years old, when they weigh from 14 to 18 hundred-weight, but they are capable of added improvement. They were first imported into the United States, as they are now found, by Overton Lea, of Nashville, Tenn.

The West Highlanders.—The West Highland tribe are the "Kael," or Highland cattle, and are natives of the glens and heathery hills of Argyshire, in Scotland, and of the islands of Mull and Islay, and the Hebridean islands off the coast, where they have been reared for numberless centuries, as especially adapted to the soil and climate. They are small in stature, thick-skinned, with a shaggy coat of long, wavy hair. Their color varies, some being black, some red, some slate, and others a yellow-dun color. Their heads are short but well proportioned, with a profusion of shaggy locks hanging over their foreheads and below their eyes. Their muzzle is small, with open nostrils, and the nose is slightly tilted upward. Their eyes are prominent and liquid, and their calm, keen expression is almost human. Their long pointed horns appear formidable, turned and set backward, with a wide and sweeping curve. Their bodies are straight, wide, deep, compact, and shapely; and their legs short and muscular. They are vigorous and mettlesome, run wild like sheep, and are altogether so picturesque that they are used like

deer in adornment of woodland scenery, in parks, or large demesnes, where they are available for ornament all the year round. They have the combined attributes of hardihood and choice grazing qualities, but are never used for draft purposes, because a roving life is natural to them, and they are too spirited, although, when domesticated, they become docile. West Highland cows mature at three years and average 750 pounds. Early Scotch herds were formed at Castle Craignish and at Poltalloch in 1795. Later owners have been the Duke of Athole and the Earls of Dunmore and Kinnaird. The Donachadh-Ran Nan Oran, which took prizes at the Paris Exposition in 1878, and had his portrait painted by Rosa Bonheur, belonged to the Ben More herd. A few of them were occasionally imported into Canada and dispersed in various sections of the province and the Western States. In 1888 seven animals—a bull, three cows, heifer and bull calves—were purchased from the imported herd of Hon. Joseph Hickson, of Montreal, by Hon. Lewis F. Allen, of Buffalo, N. Y. They are of the improved variety, in which the bulls at maturity weigh 1,400, and the cows 1,000 pounds; all of light dun and slate colors. The importations of later years are principally of the yellow-dun color, and of heavier body than the original black type that characterized them.

The Devons.—The Devon cattle come from Devon and Somersetshire, England, and are of the medium-horned variety. Those in the northern part of the county have always been brought to an ultra degree of refinement, and had reached their present perfection and high renown a century ago, always receiving first mention in the English lists. Their ancestry can be traced back until merged with the aboriginal type existent when Julius Cæsar entered the country. They are of remunerative excellence in both classes, their merits partaking more of quality than quantity. They carry this trait into their labor as oxen, doing their work with the intelligence and activity of the superior creature. Their appearance bears the stamp of aristocratic lineage, and even the little calves are of princely mien. As a class they seem faultless in symmetrical beauty and fine structure, maturing more slowly than others. Their color is red, rich and even in tone. Their heads are small; the forehead very wide and slightly indented; the muzzle very fine, like an elk's, and creamy in color; the eyes large, clear, showing considerable white, and encircled with a line of orange; the horns of the cow tapering finely and curving upward. The Devons have no peers; and, although they do not equal the Shorthorns or Herefords in size, they are capable of approaching them in real use. The first record of their importation into America was in 1817 for Messrs. Caton and Paterson, of Baltimore. Other importations followed by Rufus King, of Jamaica, N. Y., and for the Agricultural Society of Massachusetts, until the Devons are now as popularly known as any others. Their herd-book was not opened until 1851. Selected dairies of Devon stock have yielded an average of 500 to 600 gallons of milk in a year and 300 pounds of butter.

The Red-Polled.—The Red-polls are another variety of the hornless tribe, and are also known

as Norfolk-Suffolk cattle, from the two counties of which they are natives. From earliest recollection, each county had its primitive and distinct type. The red cattle in Norfolk were spoken of as "little Herefords," and the larger and coarser type in Suffolk was much esteemed one hundred and fifty years ago, and was scattered far into Norfolk in 1780. They were thought to be descended from the white-polled cows kept by the monks, and some country gentlemen and noblemen still keep these ancient cows as specimens of fancy types. The new type first attracted attention in 1846 as a fusion of the blood of both stocks, the traits of the hornless stock predominating. They won a special Battersea prize in 1862, but the present standard was not accepted until 1873. Their color is a deep blood-red, with the tip of the tail white, and the nose must not be dark. The eye is full, and the disposition kindly. The head is well and neatly set, contracted above the forehead into a knobbed crest, with the characteristic lock of hair overhanging the forehead. In other respects they have all the commonly accepted points of good animals of their kind, but are thick and chubby, and have not the grace of outline of some of their congeners. They have superiority in quality at an early age, and have won approbation for their dairy qualities. The stock has been comparatively scarce, but is increasing in numbers of late years, and improving in size. Like all true Scots, they are thrifty, and can do well on meager soil, and will average 1,000 pounds in cows to 1,500 pounds in bulls in weight at four years. These last two varieties lead properly to the dairy class, the chief type of which is—

The Jersey.—The Jersey has for its original habitat the island of Jersey, one of a group of three in the English Channel, off the coast of Normandy, with which mainland it was probably once connected. The separation left Jersey as a diminutive farming country, about twelve miles long and six broad; and as individual farms were small, necessity and economy required, with 12,000 cattle to keep, that they should be tethered and fed regularly by hand. From this practice, the race of Jersey cattle became possessed of their eminent dairy qualities, exceptional docility, and delicacy conservatively maintained. They are entirely excluded from the draft and grazing class. Since introduced into Hants and Essex counties, in England, their original broken-colored, soft coat, has changed to one tint of either silver gray or yellow fawn. They have a thin, movable hide of yellow tint; their heads are finely tapered, with the muzzle like an elk's, and their faces are lean and smoky white; their ears are thin and sensitive, and lined with a deep golden tint; their eyes are full of animation, and are circled by a creamy-white line; their horns have polish and a slight crumple; their backs are straight; chests deep; they are barrel shaped and well ribbed; their tails hang below the hock; their legs are short and fine; they step well, and have altogether much grace and elegance. Their milk is yellow, and so excessively rich that it often kills the young calves. They give a large quantity, with a high percentage of cream, tests giving an average fair standard of ten quarts a day and seven pounds of butter a week per head, excep-

tional figures being obtained above this from selected herds. Jersey cattle were imported early in this century into America, but notably in numbers by John A. Taintor, of Hartford, Conn., in 1850, since which time fine herds have been established in different parts of the United States and in Hamilton, Ontario. They are the most aristocratic members of their class, require the utmost care and attention, and do not mature under four or five years. They are the cattle once known as Alderneys, but this name has been found to be incorrect—the cattle of that island being rarely exported. Jersey exports about 2,000 annually, but maintains the strictest laws of exclusion against foreign importation of cattle with rigid enforcement and a herd-book and register that admits all the cattle on the island.

The Guernseys.—The Guernsey cattle come from the isle of Guernsey, in the English Channel, and have their best English representatives in the counties of Hants and Devon and in America. Many fine herds of them are bred and owned in the United States, among them a fine herd is owned by Vice-President Morton at his country home of Ellerslie, on the Hudson. They were imported into the United States at the time of the first importation of Jerseys, indiscriminately as Alderneys. The same laws prohibiting foreign stock prevail in the three islands, but they are not so strictly observed in Guernsey, nor is export so forbidden as it is in Alderney. The Guernsey cattle are larger, coarser boned, fleshier, and more hardy than the Jersey cattle. They mature at three years, last longer, and yield for the dairy all the year around. When they develop grazing character, they lose proportionately in dairy qualities. Their color is lemon and white, or lemon fawn with white. Their heads are small and neat, and their necks long and slender. Their eyes are bright, yet placid, and there is a yellow ring around them. Their ears are thin and sensitive, and orange colored within. Their nostrils are open; their shoulders thin; their horns glisten, are fine in texture, well turned up, and yellow at their base. Their legs are delicate; their skin delicate and tinged with a deep yellow glow; and they generally are straight-backed, compact, and wedge-shaped, and have a wide scope of usefulness. Their herd-books maintain the principles of selected types, and register from 16 to 17 pounds of butter a week in extreme cases; the fairest average cream tests giving 15 per cent. from time to time, and a yield of 9½ pounds of butter a week from 83 quarts of milk.

The Ayrshires.—The Ayrshires are the only dairy stock in their native county of Ayr, in Scotland, on the eastern coast of the Firth of Clyde, and have few rivals in many other countries. Their real origin is not definitely known. The county of Ayr is divided into three districts—Kyle, Carrick, and Cunningham—the last named lying farthest north. In this latter district there was a family of distinction named Dunlop, some time between 1733 and 1740, who gave their name to their parish in that district and to a type of this stock that has had especial fame since 1780. This parish still maintains its pre-eminence for herds of special perfection. They were first recognized by the National Society of Agriculture in 1826, and were first intro-

duced into Berwickshire, Scotland, by Lord Marchmont who also had estates in Kyle, and were established in Carrick by Mr. Fulton, of Blith. From these three districts they spread rapidly, having a tendency to increased size on English and American soils. They were first brought to America in 1831, and J. P. Cushing, of Watertown, Mass., imported a fine herd in 1837. Their prevailing color is brown or red brown or red brown spotted or mixed with inequalities of white. This rule is sometimes stylishly reversed. They have close wooly coats, thin elastic skins; straight, broad backs; ribs well sprung; bodies of substance and symmetry; and short, finely jointed legs. Their heads are short from eyes to muzzle; the eyes fine and lustrous; forehead wide between the eyes, and still broader between the horns, which are clear in tint, short, and wide apart with upward inclination. They are fine boned, and have much grandeur of carriage. They mature at three years, and could be made good grazers, although under middle size. In recent tests, as recorded, they gave an annual average of from 600 to 750 gallons of milk, 275 pounds of butter, and 550 pounds of cheese.

The Holstein-Frisian.—The Holstein-Frisian cattle originated in the province of Friesland, Holland, where they have been reared and guarded for centuries, and in the province of Drenthe. There is no breed in Holland named specifically Holsteins, although there is one in Germany. In Holland, as in other countries, stock comprises many varieties, of which the Frisian is but one. The Frisian must not be confounded with the Drenthe or the Frisian-Drenthe-Gelderland breeds. The Drenthe cow is said to bear a resemblance to the Ayrshire cow, more exact than the resemblance of the Shorthorns of England to the north of Holland and Flemish cattle. As the cattle from the Netherlands were largely imported into England as early as the seventeenth century, these resemblances to the primitive type do not seem remarkable, and may be traced into France, Germany, Switzerland, and Russia, and to the types existent there—even the Channel Island types possibly being but the overrefined Greeks of their kind. The Holstein-Frisian type was known in America between 1661 and 1795, in the Dutch settlements on the Hudson, and in the valley of the Mohawk. Other trial importations were made by Hon. William Jarvis, of Weathersfield, Vt., in 1810, and by Hon. Winthrop W. Chenery during the interval until 1861, who first permanently maintained an American herd. Since that time they have gained in esteem and won celebrity in public scientific tests, notably by the "Aaggie," "Mercedes," and "De Schott" families, and numerous others. They have caused the consideration of 7 pounds of butter a week and 3 gallons a day of milk to seem small capacity for improved stock, modern averages of Holstein-Frisian tests reaching 12 to 15 pounds in the same length of time, under extraordinary feeding, which proves them to be of surpassing excellence in the dairy class, and generally satisfactory. They are jet black, irregularly mottled with white, with a fine silky coat. They have slender necks, their heads, eyes, and proportions are fine, their backs straight and broad, legs and horns short, muzzles small and white, and they attain size in

grazing. The name of Holstein-Frisian for these cattle is due to the protests in Holland in regard to the customary use in America of the name of Holstein for their cattle, which caused the two rival American associations of Dutch-Frisian and Holstein owners to combine in 1885 under the name of Holstein-Frisian Association, by which they are now known. Their first herd-book was issued in 1872, antedating the Holland herd-book by three years. A later issue was made in 1885, and a new registry established in 1887, called "The Advanced Registry," its rules admitting only records of actual performance, and individual excellence. A registry with these requirements is considered a decisive advance toward maintaining purity and progression. A variety called Dutch belted cattle were first imported into America and sent to Orange County in 1838, since which time their owners have formed a separate association, and published their own herd-book in 1886. Their peculiarity consists in a white belt entirely encircling their jet-black bodies for one third their length. This uniform marking has become standard, and they are smaller than the original type from which they are descendant.

The Brown-Swiss.—The Brown-Swiss, or Schwytzer, race were bred for ages in the canton of Schwytz, where they are purest, and in the cantons of Uri and Zug, from where they spread throughout the mountain region. Their records were kept for centuries by the monks at Einsiedeln, and were later continued in the books of the Anglo-Swiss Condensed Milk Company at Cham, whose factory is managed by an American, and whose books are considered to be the best record of cattle statistics in the world. The Brown-Schwytz cattle took prizes at the Paris Exposition in 1878, at the National Exhibition at Lucerne in 1881, at Hamburg a few years later, and in Denmark and England up to 1883. They are supposed to be derived from Holland, and this claim seems to be verified by the duplication of the similarly belted cattle variation of Holland, existing in "Dem Kleinen Lande Appenzell." The color of the Brown-Swiss race is not a common red brown; it is a gray brown, and the more nearly this color is reached the more certainly are they of pure blood. They have a fleshy roundness of contour, are large and deep-chested, and have very straight backs, with a distinguishing streak of gray from their horns to their tails. They have sleek coats and fine heads, their noses are black, ringed with nearly white, and tongues rough and black. They have large and mild black eyes and large ears, with a conspicuous lining of long hair of a coffee-with-cream tint; horns of smooth whiteness, tipped with black for one third their length. Their ordinary weight averages from 1,300 to 1,400 pounds (Swiss measure). They will average for every day in the year, as no exceptional estimate, 10 quarts of milk without extra feeding. From averages taken from 5,000 to 6,000 cows at the factory at Cham, they attained for short periods 24 quarts of milk daily, and 175 pounds of butter a year. For the season at the monastery, they averaged 10 litres daily, the Swiss litre being 0.95 of an American quart. In recent tests, carefully made in Massachusetts, the average reached was 28 quarts daily for

seven consecutive days. These cattle were imported into the United States by Henry M. Clark, of Belmont, Mass., in 1869, and into other Eastern States in 1873, and more numerous since that time, and they are found to improve in America. There is an association devoted to their culture, with a herd-book published in New London, Conn.

Some additional description of the stock esteemed in other countries would assist in making an intelligent discrimination in favor of the varieties described as preferred, but is not required beyond the brief mention of the Longhorn race of England and the Charolaise of France, as having attracted some attention as possessors of good points. Three or four Longhorns were imported by Col. Sanders, of Kentucky, in 1817. They were of good character in general, but, as their eccentric horns refused to follow any "uniformity of standard description," they were not considered economical, and have become extinct in the United States. The Andalusian race of Spain was brought to America at the time of the Spanish conquest of Mexico, and the cattle of that republic and of the Texan ranches are their descendants. They have lost in purity and rank, and have now no more pretensions than the almond-eyed aboriginal of Hungary and the steppes to be considered as of improved stock in America.

CAVE-DRAWINGS. It was the custom of the ancient races of America, and to some extent of their successors, the modern Indians, to portray their ideas on the surface of rocks by incised lines, continuous or broken, and gouged-out surfaces (*intaglio* work), and by paintings, and also, occasionally, by both methods in combination. These engravings were made to represent all sorts of living things, as well as grotesque configurations and simple forms whose meaning can only be guessed at. Such pictographs are found in almost every State of the Union, and on rocks of various kinds, shapes, and disposition. High on the face of cliffs, on fallen masses by the water's edge, on outcrops barely peeping above the ground, on isolated boulders, at the foot of bluffs where the perpendicular surface of the rock trends inward and forms a slight shelter, in narrow fissures between the rocks, and on the sides and roofs of true caves, aboriginal man left his mark. More than two centuries have elapsed since ancient pictographs on rocks were first noticed by white men in North America. The earliest instance seems to be that noted by the travelers Marquette and Joliet, who, in 1673, made their celebrated journey of discovery down the Mississippi. Father Marquette's words are: "As we coasted along some rocks, fearful for their height and length, we saw upon one of them two painted monsters, which startled us at the first, and upon which the boldest savages do not dare to let their eyes rest. They are as large as a calf; they have horns on the head like deer, a frightful expression, red eyes, a beard like a tiger; the face is somewhat human, the body covered with scales, and the tail so long that it makes the entire tour of the body; passing the head and returning between the legs, it terminates in a fish's tail. Green, red, and blackish (*noirâtre*) are the three colors that compose it; finally, these two monsters are so

well drawn that we can not believe that any savage was the maker of them, since good painters in France would have trouble to do so well; and, besides, they are so high on the rock that it would be difficult to get there conveniently to paint them." Father Douay and Henry Joutel, ascending the river on their return from the disastrous La Salle expedition to Texas, mention the place, the latter writing thus: "On the 2d [September, 1687] we arrived in the place where is the figure of the pretended monster of Father Marquette. This monster consists of two sorry figures outlined in red upon the face of a rock about eight or ten feet high, which is far from the extraordinary height that this narrative speaks of. Our savages, however, paid homage to this stone by a sacrifice, in spite of our efforts to make them understand that this rock had no merit, and that we adored something greater, showing them the heavens." The place where these paintings were was on the north side of the river not far above the mouth of the Missouri, where Alton was subsequently laid out. Maj. Amos Stoddard, in his "Sketches of Louisiana," says that they were then (1812) in a good state of preservation, and known by the name of the *Piesas*. They were unfortunately quarried away many years ago, and there is no authentic copy of them.

Peter Kalm, a Swedish naturalist, when on his travels in North America, made minute inquiries as to vestiges of antiquity. While in Canada, in 1749, he talked with the Chevalier Verendrye, who, in 1742-43, had first traversed the country between the Missouri river and the Rocky mountains. The chevalier and his men had seen, far in the interior of the country, on the prairies what now we know to be prehistoric rock-carvings. "In two or three places, but at considerable distances between each point, our travelers found upon the rock impressions of feet, both those of children and grown people—probably simple freaks of Nature. After they had advanced still farther to the west and to regions where, to the best of their knowledge, no Frenchman or other European had ever been before, they found in a certain place in the woods, and then in an extended plain, some great pillars of stone leaning against each other. . . . At last they found a large stone in the form of a pillar, in which was set a smaller stone covered on both sides with unknown characters. . . . The letters engraved upon it are the same as those which (in books containing accounts of Tartary) are called Tartarian characters. . . . It was in vain for the French to question the Indians, . . . impossible to get from them the least explanation; they were quite as ignorant on the subject as the French themselves. All that they could do was to affirm the existence of these pillars in these places from time immemorial."

One hundred and forty years ago Capt. Céloron de Bienville, a French commander, buried one of his governmental plates—indicative of possession—on the bank of the Alleghany river, about six miles below the present Franklin, Pa., "near a large stone on which can be seen many figures somewhat rudely engraved." In recent times this stone has gone by the name of the "Indian God Rock."

These three foregoing accounts represent the

principal, if not the only, instances of rock inscriptions in the northern parts of this continent described by writers of the time of the French *régime*, and though, with others known to the English, like the Dighton Rock, they were probably conspicuous from their prominent position or from their location on routes of travel, and therefore early remarked and described, yet in artistic conception and workmanship they doubtless did not differ materially from scores of others that have been discovered since. Naturally the work of this kind that was executed in caves came to the notice of civilized man much later, for such places would be somewhat out of the way and more or less inaccessible without special effort, and, indeed, as possible resorts of wild beasts or venomous reptiles, would not be sought by the traveler unnecessarily. But a notable ex-

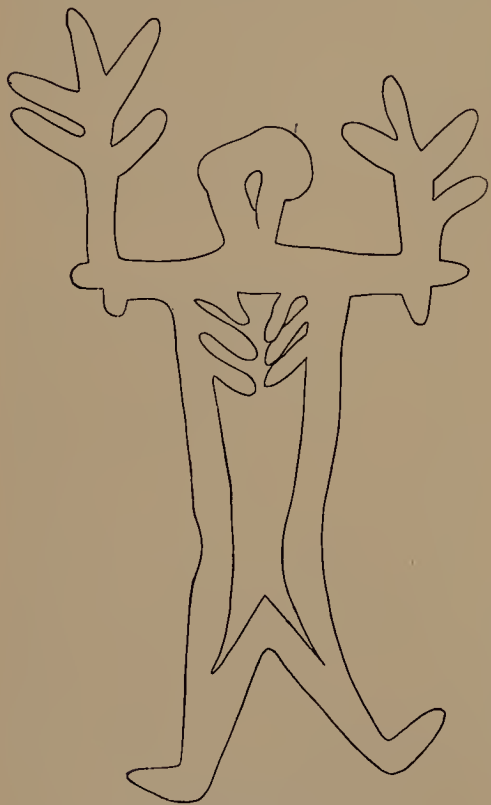


FIG. 1.—DAYTON'S BLUFF CAVE.

ception to this rule was a cave within the limits of the capital city of Minnesota, which for over a century has had a somewhat undeserved celebrity, which was given to it by Capt. Jonathan Carver in 1766-'67. In his description he mentions the incised figures as follows: "I found in this cave many Indian hieroglyphics, which appeared very ancient, for time had nearly covered them with moss, so that it was with difficulty I could trace them. They were cut in a rude manner upon the inside of the wall, which was composed of a stone so extremely soft that it might be easily penetrated with a knife—a stone everywhere to be found near the Mississippi." The construction of a railroad some years ago, which necessitated the demolition of the front part of this cave, together with the confusion made by the intrusive names of modern visitors and idlers,

ruined the aboriginal pictographs in it, of none of which is a copy known to have been made. Ten years ago there were plainly to be seen snakes, birds, men, animals, fish, and turtles, some of which were *intaglios* and others outline figures, and they were clearly of the same style and probable age of those discovered in recent years in caves along the valley of the upper Mississippi. Since October, 1888, several caves, rock shelters, and fissures have been visited between a point a few miles below Lansing, Iowa, and St. Paul, Minn., and thoroughly explored for pictographs, of which the best specimens were carefully copied. Seven of the caves are here described, in the order of the descent of the river from north to south, and at least one good representative pictograph from each, reduced in facsimile, is furnished by way of illustration.

Dayton's Bluff Cave, St. Paul, Minn.—At the foot of Dayton's Bluff, which skirts the river in the lower part of the city, 50 feet northeast of Commercial Street, about midway between Plum and Cherry Streets, and a little over 400 feet above Carver's Cave (already cited), is a moderate sized cave, only one third the length of that one, facing to the southwest similarly. It is about 35 feet in length, measuring on the present floor to the edge of the water in the rear that in a few feet meets the descending slope of the roof; in width about 24 feet, and, at present, 10 feet high. In it are pictures of men, birds, and animals, cut into the side-walls and roof, all of which are outline figures. The one illustrated here (Fig. 1), which is on the left hand as one enters, and quite near the floor, represents a man with uplifted hands, and is about one foot in length.

La Moille Cave, Winona County, Minn.—This is the most interesting place of its kind yet discovered. It is on the south side of Trout brook, about a mile southeast from La Moille railroad station. The valley is somewhat of an amphitheatre, being walled in on two sides by bluffs from 300 to 500 feet high, with the land rising in high plateaus to the west and northwest. On the south side of the valley, where the brook runs near the foot of the bluff, there is a rock escarpment of Potsdam sandstone rising about 30 feet, which is perpendicular, and at this point there is an archway 27 feet wide and 9 feet high. Above the archway a large pine tree stands on the verge of the rock. From the entrance to the back part of the cave the distance is 45 feet; the length of the cave proper, which runs parallel with the outer face of the rock is 70 feet. The roof is bell-shaped, sloping from a central point toward the bottom on all sides, and at the highest point it is 15 feet above the ground at the entrance. The floor is not level, the eastern side being the highest. Flowing from the heart of the bluff are two springs, one from the southeast and the other from the southwest, which unite on the west side of the cave, and thence flow into Trout Brook, 30 feet from the entrance. The southeast stream emerges from a low passage-way, which is about 12 feet broad and from 2 to 3 feet high, extends beyond the main cave 30 to 40 feet, and then becomes narrower and much lower. When the Mississippi river overflows its banks the back water enters the cave, and at extreme

high-water point the entrance is not over 3 feet high.

From the accounts of early settlers in this region, it seems that the roof of the cave was once a mass of pictographs, but many of them have gradually scaled off. Traces of them may still be found. While there are a few pictures on the

or described. There are more pictographs in this cave than have been found at any other point in the Mississippi valley. Four of the figures are illustrated in this article. The fish (Fig. 2), is on the southwestern slope of the roof, and is about $5\frac{1}{2}$ feet long. The width between the ends of the fins is about 2 feet 8 inches.

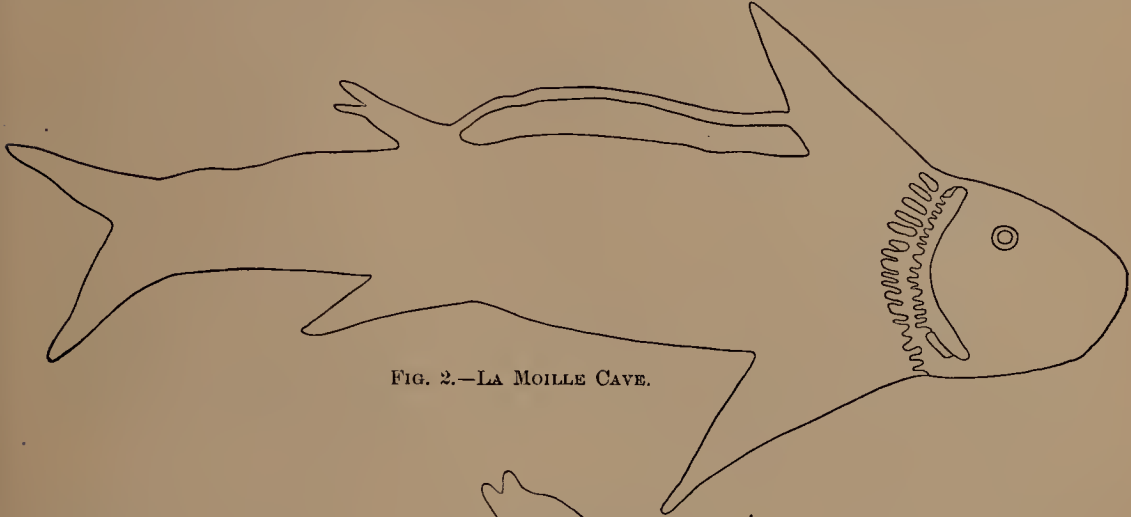


FIG. 2.—LA MOILLE CAVE.

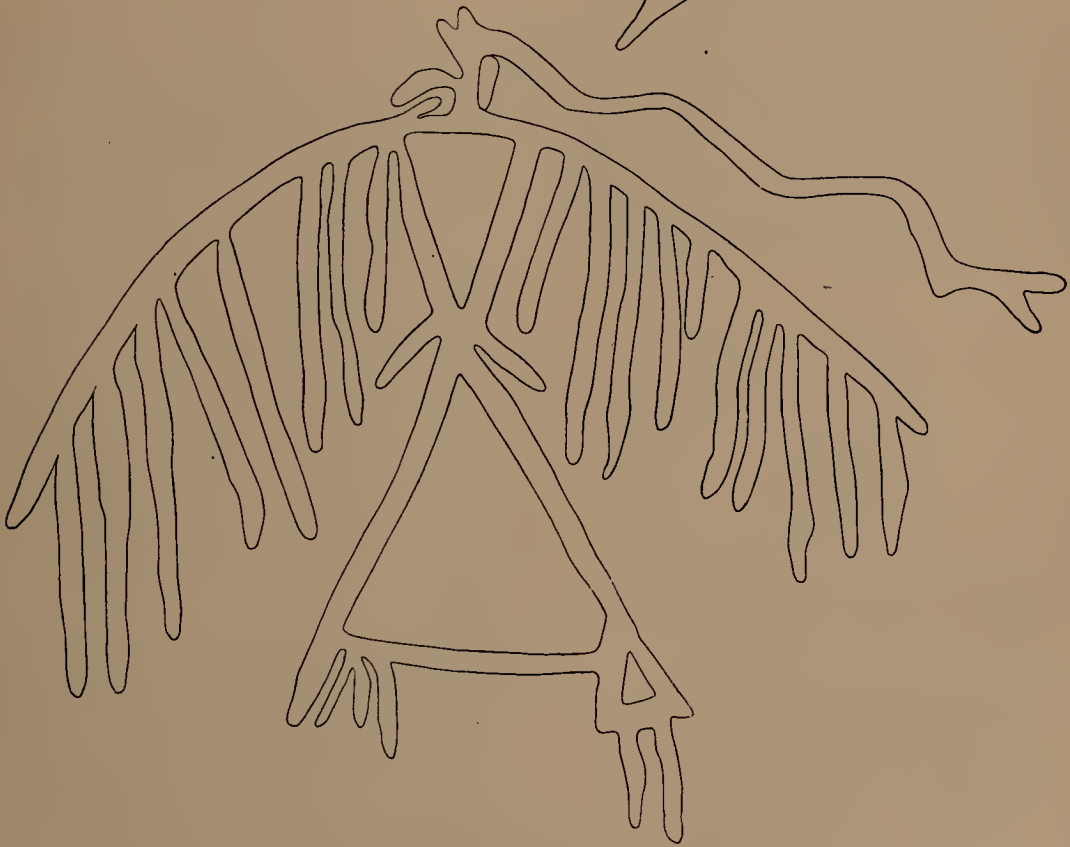


FIG. 3.—LA MOILLE CAVE.

southeast and south sides, the southwest and west sides are covered with a crowded mass, some of them crossing or intersecting each other in all directions; and after the ravages of time and acts of vandalism, a great quantity of carvings still remain. Among them are to be found representations of men, birds, animals, snakes, fish, trees, and other things not so easily named

The body is excavated into the rock $1\frac{1}{2}$ inch in depth, and is perfectly smooth. The bird (Fig. 3), is to the right of the fish, and but a few feet distant, and covers a space of about 3 by $3\frac{1}{2}$ feet. [It might be conjectured that this figure, instead of representing a bird, is a family tree: the right-hand half representing the husband and ten sons, the left-hand the wife and eight

daughters, while the pennant at the top may be the family or tribal ensign.] In this instance an attempt has been made to show the wing-feathers, which (though it is not an uncommon thing to see them delineated in this region) are on a far more elaborate scale than is usually attempt-

delineated. Other specimens of the serpent family are represented in this cave, and are much finer and more perfect, especially as regards the rattles (in snakes of that class), and they are also larger. Similarity in size governed partly the selection for illustration of the two here given.

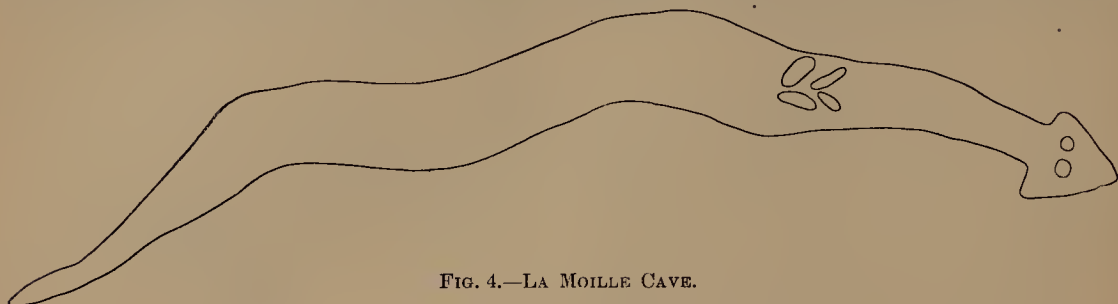


FIG. 4.—LA MOILLE CAVE.



FIG. 5.—LA MOILLE CAVE.

ed. The groove extending back from the head may be intended to represent a snake with open mouth, but as there is no similar specimen to be found among the numerous snakes (30 or more) carved upon the roof, it is not unreasonable to surmise that it may be intended to symbolize speech. The two snakes (Figs. 4 and 5) are on the west slope of the roof, and represent two

Some of them have forked tongues protruding from the mouth, which may be intended to represent speaking rather than hissing.

Samuel's Cave, La Crosse County, Wis.—This cave, unlike the others here described, is not in the immediate valley of the Mississippi, but is about 9 miles by road from the city of La Crosse, on the northwest quarter of section 20, town 16, range 6. It is near the foot of a hill that rises about 70 feet above the valley, and until within a few years its existence was unknown, the entrance having been covered by the gradual accumulation of *débris* washed from the slope above. On the side walls and lower slope of the roof are outline figures, as well as paintings having a bluish-black color. The latter are covered with a thin glazing or coating deposited from disintegrated limestone. There are outline carvings representing men, animals, birds, etc. The one here illustrated (Fig. 6) denotes an elk, probably, and covers a space about one foot square.



FIG. 6.—SAMUEL'S CAVE.

types, one of which is a rattlesnake. They are grooved out from one-half inch to one inch in depth, and are perfectly smooth. In the bottom of the main groove are smaller ones, which are probably intended to represent the darker colorings on the back of the particular kind of snake

Reno Cave, Houston County, Minn.—This is on the northwest quarter of section 35, town 102, range 4, near Reno, locally known as Caledonia Junction. It is about 150 feet above the clough, in a ledge 30 feet in height. There are carvings representing birds, men, etc., both on the face of the ledge and in the cave. The grotesque figure, or rather caricature, here illustrated (Fig. 7) represents a man with large hands, and somewhat after the style of some of the Mexican carvings.

Allamakee County, Iowa, Cave No. 1.—Above Kain's Station, on the northeast quarter of section 26, town 100, range 4 W., is a ledge extending along the slough for about 150 yards, which is about 25 feet in height above the water. In this ledge are a cave, several fissures, and some shelters. The figure (Fig. 8) illustrated represents a human head with horns or feathers, and covers a space about 9 by 12 inches. The

cave was used as a dwelling-place at some early period, for there are numerous fragments of partially burned bones, broken pottery, etc., bedded

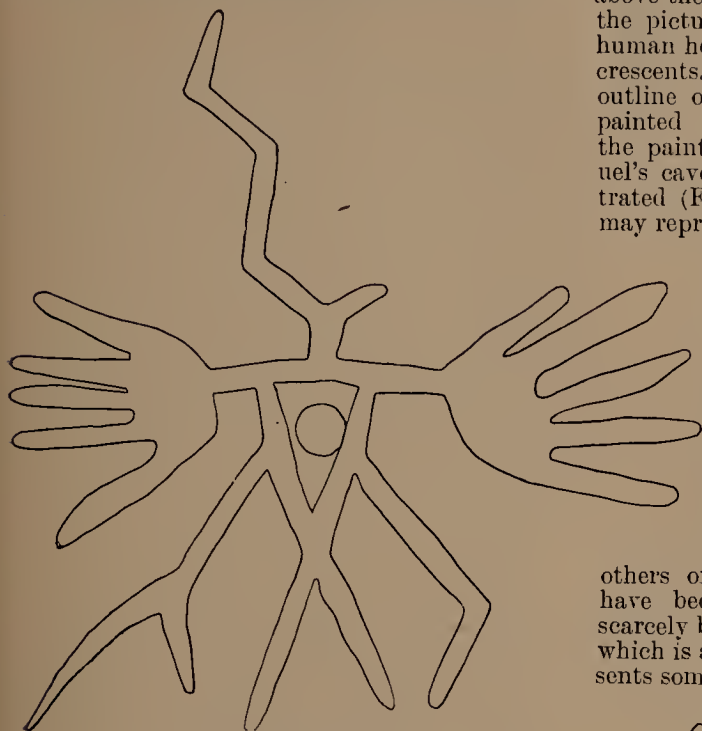


FIG. 7. —RENO CAVE.

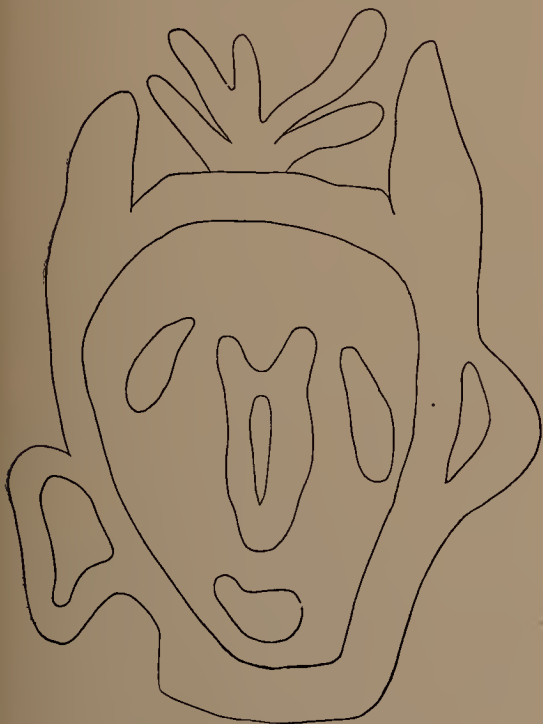


FIG. 8. —ALLAMAKEE CAVE, No. 1.

in the earth covering the floor. At the various other points that are mentioned above are to be found representations of hands, feet, men, birds' claws, and other objects.

Allamakee County, Iowa, Cave No. 2.—On the northwest quarter of section 18, town 99, range 3 W., is a ledge of rock about 200 feet above the river, in which is a small cave. Among the pictures in it are several representing the human head, also snakes, animals, and canoes, or crescents. In one case the groove forming the outline of one of the heads (human) has been painted a bluish-black color, and apparently the paint is the same as that used in the Samuel's cave near La Crosse. The specimen illustrated (Fig. 9), which is about 6 by 15 inches, may represent some kind of bird.

Allamakee County, Iowa, Cave No. 3.—On the northeast quarter of section 3, town 98, range 3 W., three or four miles below Lansing, is a ledge about fifty feet high, standing about 100 feet above the river. In this ledge are two narrow caves or fissures, known as the "Indian cave," on the walls of which were formerly a large number of carvings representing men, animals, snakes, birds, human feet, birds' and animals' tracks, human faces, crescents (canoes?) and others of doubtful character. Many of these have been wantonly defaced until they can scarcely be traced. The one here given (Fig. 10), which is about 14 by 19 inches, probably represents some kind of bird.



FIG. 9. —ALLAMAKEE CAVE, No. 2.

In copying these cave-drawings, it has been an object to get only the best specimens, for it is an impossibility to get all of them, and often it is hard to tell where there is a beginning or an end-

ing. There is no way now of determining how all this carving was done, for the grooves of themselves show no other indication than the rubbing process. As for style and merit, these selected and representative pictographs must speak for themselves; and as regards their meaning, it is purely a matter for conjecture, and the reader may draw his own conclusions as



FIG. 10.—ALLAMAKEE CAVE, No. 3.

to whether religious or mythological ideas entered into their construction, or whether they were but casual records or idle work. Their antiquity, however, is great, as was proved by excavations made in the Samuel's cave shortly after its discovery in 1878—the only cave of the upper Mississippi that, up to this time, has been formally brought to the notice of antiquaries.

CHEMISTRY. Chemical Philosophy.—One of the most notable contributions of the year to this branch of chemistry is the lecture by the distinguished Russian chemist Mendelceff, at the Royal Institution of Great Britain, in which he attempts to apply to chemistry the dynamical principle of Newton's Natural Philosophy. Having traced an analogy between the grouping of atoms and the arrangement of celestial bodies in stellar systems, the author assumes that chemists have during the last ten years sought and found systems of conservation or dynamical equilibrium similar to those which prevail in the visible world, and by which the position of the heavenly bodies in the universe is determined. Where one-sided affinities only were at first detected, secondary or lateral ones have also been found, and even those which are diametrically opposite; yet, as

among these, dynamical equilibrium establishes itself, not by excluding one or other of the forces, but by regulating them all, so the chemist finds in the flame of the blast-furnace, the formation of salts, and with especial clearness in double salts, and in the crystallization of solutions, not a fight ending in the victory of one side, as used to be supposed, but the conjunction of forces; the peace of dynamic equilibrium resulting from the action of many forces and affinities. Carbon combines with oxygen under the influence of heat, and is dissociated from it by heat. In the case of the solution of common salt in water, it is necessary to take into account, on the one hand, the formation of compound particles generated by the combination of salt with water, and on the other hand, the disintegration or scattering of the new particles formed as well as of those originally contained. A dynamic equilibrium is formed, of particles tending to combine and also to fall asunder. Chemical reactions which formerly appeared to act victoriously along one line have been proved capable of acting as victoriously along an exactly opposite line. It is insufficient to suppose that statical equilibrium reigns alone in chemical systems or chemical molecules.

Numerous considerations compel us to renounce this idea; and appeals to dynamic principles constitute, in the author's opinion, the foundation of the modern teaching relating to atomicity, or the valency of elements. Starting with Newton's third law of motion (of action and reaction), it is possible to preserve for chemistry all the advantages arising from structural teaching, without being obliged to build up molecules in solid and motionless figures, or to ascribe to atoms definite limited valencies, directions of cohesion, or affinities. The case of substitutions is selected for present consideration by the author, and is discussed with particular reference to the illustrations that may be drawn from the carbon compounds of the doctrine that if a system of atoms or a molecule be given, then in it, according to the third law of Newton, each portion of atoms acts on the remaining portions in the same manner and with the same force as the second set of atoms acts on the first. It is inferred directly from this consideration that both sets of atoms forming a molecule are not only equivalent with regard to themselves, as they must be according to Dalton's law, but also that they may, if united, replace each other. The review results in the conclusion that by the principle of substitution—that is, by the third law of Newton—"we are able to deduce, in the simplest manner, not only the individual composition, the isomerism and relations of substances, but also the general laws which govern their most complex combinations, without having recourse either to statical constructions, to the definition of atomicities, to the exclusion of free affinities, or to the recognition of those single, double, or treble ties which are so indispensable to structurists in the explanation of the composition and construction of hydrocarbon compounds. And yet, by the application of the dynamic principles of Newton, we can attain to that chief and fundamental object—the comprehension of isomerism in hydrocarbon compounds, and the forecasting of the ex-

istence of compounds as yet unknown, by which the edifice raised by structural teaching is strengthened and supported."

In his book on "Cosmic Evolution," Mr. E. A. Ridsdale, regarding that process as the universal factor, applies it to account for the origin of the chemical elements and combinations. In this sphere the "survival of the most inert" takes the place of the "survival of the fittest" of organic evolution, and those bodies remain which are least likely to be decomposed by the action of surrounding bodies. Those bodies which are least inert will tend gradually to disappear, and, unless they are continually recreated, must in time vanish from the globe. It is shown that such a survival of the most inert is actually taking place—for, "in Nature's vast laboratory, as well as in our small experimental ones, there is a constant tendency for barium salts to form sulphates; magnesium and aluminum salts, oxides and silicates; silver salts, chlorides; lead salts, sulphides, etc. The stable or inert salt, when formed, remains—except under exceptional circumstances; but any other salt . . . is broken up, sooner or later, by contact with some unfavorable environment." We have, the author considers, a strong presumption that the "elements" are elemental only inasmuch as we have not yet been able to place them among a sufficiently powerful set of conditions. The bodies formed earliest must have been the simplest, and those originating later must have been of more complex constitution and of greater atomic weight. In harmony with these views are the well-known facts that in the groups of the elements the most active are usually those with the lowest atomic weights; that there are greater gaps in the amounts of the later-formed elements than in those of the earlier-formed ones; and that the elements with lower atomic weights are more plentiful and more generally distributed than those with higher weights.

Mr. W. Crookes concludes an account of his later spectroscopic researches in the rare earths with some observations on the definition of an element and the means by which it shall be recognized when met. Taking the case of didymium, neodymium and praseodymium are simply the products into which that substance is split up by one particular mode of attack. It should be remembered that a single operation, be it crystallization, precipitation, fusion, or partial solution, can only separate a mixture of several bodies into two parts, just as the addition of a reagent only divides a mixture into two portions, a precipitate and a solution, and these divisions will be effected on different lines according to the reagent employed. Thus by crystallizing didymium nitrate (in Auer's way) we divide the components into two parts. By fusing the same substance we divide its components in a different way; but so long as different methods of attack split up a body differently, it is evident that we have not yet got down to "bed rock." Further, a compound molecule may easily act as an element. Taking again the case of didymium—which the author regards as certainly a compound—it has a definite atomic weight; it has well-defined salts, and has been subjected to the closest scrutiny. Still the compounded molecule known as didymium was too

firmly held together to act otherwise than as an element. The simple operations to which it had been submitted in the preparation of its salts, and in its purification from other compound molecules, were not sufficient to split it up further. But subjected to a new method of attack it decomposes at once. We have, in fact, a certain number of reagents, operations, processes, etc., in use. If a body resists all these, and behaves otherwise as a simple substance, we are apt to take it at its own valuation and to call it an element. But for all that it may be compound, and as soon as a new and appropriate method of attack is devised, we find it can be split up with comparative ease. Still, we must never forget that, however complex, it can hardly be resolved into more than two parts at one operation. Hence we are not yet in a position to recognize neodymium and praseodymium as elements. We need some criterion for an element which shall appeal to our reason more clearly than the old untrustworthy characteristic of not having yet been decomposed. Until these questions can be decided, the author prefers to open what may be figuratively called a suspense account, wherein we may provisionally enter all these doubtful bodies as "meta-elements." These meta-elements may, however, have more than a provisional value. Besides compounds, we have hitherto recognized merely ultimate atoms or the aggregations of such atoms into simple molecules. But it becomes more and more probable that between the atom and the compound we have a gradation of molecules of different ranks, which, as we have seen, may pass for simple elementary bodies. It might be the easier plan, so soon as a constituent of these earths can be found to be chemically and spectroscopically distinguishable from its next of kin, to give it a name and claim for it elemental rank; but a man of science should treat every subject, not in a way to give him the greatest passing renown, but in that which will most serve science.

The observations of Dr. J. Blake, on the relations between the atomicity of the inorganic elements and their biological action, have been referred to in previous volumes of the "Cyclopædia." The author had demonstrated that the biological action of such substances is connected with the isomorphic relations of the elements; that all substances forming one and the same isomorphous group have a similar biological action; and that in each isomorphous group the intensity of the biological action is a function of the atomic weight. His continued researches appear to establish the existence of characteristic relations between the atomicity of the elements and the kind of reactions which they produce in living matter. The general results of the experiments are as follow: Monoatomic elements—action upon the pulmonary arteries; biatomic elements—action upon the centers of vomiting, and upon the voluntary and cardiac muscles. Glucinum acts also upon other nerve-centers; triatomic elements—action upon the respiratory, vasomotor, and inhibitory centers, upon the cardiac ganglia and the pulmonary arteries; tetraatomic elements—action upon the respiratory, vasomotor, and inhibitory centers, upon the brain, the spinal marrow, the cardiac ganglia, and the pulmonary arteries.

The usual graphic mode of representing the grouping of the atoms of compound substances, while it helps to the understanding of the constitution of the bodies, labors under the defect that it is confined to a plane and can not convey a clear or correct idea of the position of the atoms in space. Its insufficiency is strongly felt in such cases as that of tartaric acid, where there are several distinct isomers acting differently upon polarized light. The idea that this kind of isomerism must be due to different spatial arrangements has been gaining ground since Van t'Hoff and Le Bel published their theory of the asymmetric carbon atom, and was strengthened by Van t'Hoff's explanation of the existence of four isomeric tartaric acids by supposing the four radical groups to be variously placed at the four corners of a regular tetrahedron, of which an asymmetric carbon atom occupied the center. The theory has been expanded in a publication by Prof. J. Wislicenus on the "Spatial arrangement of Atoms in Organic Molecules, and its determination in Geometrically Isomeric Compounds." In this paper the author builds up the spatial constitution of a large number of unsaturated organic compounds, and gives nearly two hundred figures, of which the regular tetrahedron representing CH_4 is the base.

Two new instances of the formation of geometrical isomers, or compounds having the same constitution but differing in the position of their atoms in space, are afforded in the discovery of two monoxims of benzil by Dr. Auwers and Victor Meyer, and in the study of dibromide of crotonylene by Prof. Wislicenus and Herr Hölz. The existence of two dioxims of benzil having the same constitution but differing in the spatial arrangement of their atoms was already known. To these are now added two corresponding monoxims. Crotonylene, the third member of the acetylene series, forms by direct combination a dibromide the arrangement of whose atoms has been determined. On attempting to prepare it from the tetrabromide by the abstraction of two atoms of bromine a different substance was obtained. Both compounds combine with a further quantity of bromine to form the same crystalline tetrabromide. The discoveries further confirm the modified hypothesis of Van t'Hoff and Wislicenus, and mark another step toward the definition of the orientation of the atoms in chemical molecules.

Chemical Physics.—The opinion was recently advanced by Krämer and Böttger, in a study of the hydrocarbons contained in crude petroleum, that certain of these substances must have been formed by distillation of organic matter at comparatively low temperature and high pressure. Acting upon this suggestion, Engler distilled one thousand pounds of menhaden oil at a temperature of from 350° to 400°C. , under a pressure of two atmospheres. The distillate consisted of combustible gases, water, and six hundred pounds of oil resembling crude petroleum in appearance and reactions. Of this oil 26 per cent. boiled below 150°C. , and seemed identical with that portion of crude petroleum that boils below 150° . The author explains the fact that crude petroleum contains only traces of nitrogen by assuming that, on the decomposition of the animal remains under long con-

tinued pressure, the nitrogen escapes as ammonia. He also gives an experimental answer to the objection against the organic origin of petroleum that is based on the absence of free carbon.

The nature of solutions as elucidated by a study of their densities, electric conductivities, heat capacity, and heat of dissolution, has been discussed by S. U. Pickering. The solutions examined were those of calcium chloride, calcium nitrate, and sulphuric acid, and the various hydrates which are proved to exist in solution are numerous and complete. The existence of these hydrates is naturally more doubtful in some cases than in others; and it is impossible to determine the exact molecular composition when more than about $10\text{H}_2\text{O}$ is present. The existence of such compounds as the highest hydrate found, with the excessively large amount of water (4590 to 1), explains the influence which mere traces of one substance may have on another substance—impurities in metals, for example. The final conclusion deduced by the author is the rejection of any theory of dissolution other than the hydrate theory.

M. A. Etard has described experiments that go to show that solubility increases steadily with the temperature, and becomes unlimited at or close to the point of fusion of the salt entering into the solution; a given quantity of water may then always dissolve a quantity of any salt.

Experiments in chemical action between solids are described by William Hallock in support of his theory that such action may take place wherever the product or products are liquid, with perhaps the added condition that one or both the reagents be soluble in the liquid produced. The solid reagents of certain freezing mixtures were brought together at temperatures decidedly below the melting point of either of them, and readily liquefied. The author suggests that the reaction when ice is used may begin by the vapor attacking the other reagent so as to form a hydrate which unites with other ice, forming a solution, and is continued. In view of these and other considerations, the idea is evident that perhaps many substances have a slight vapor tension at temperatures considerably below their melting points, and are surrounded by a thin atmosphere of their own vapor over their clean surfaces, and it is only necessary to bring two such atmospheres to interpenetration in order to initiate the reaction which will then continue, provided the product (liquid or gas) escapes easily and does not clog the operation. Such a view would account for the regelation of substances like ice and camphor without pressure. We might even predict from it a uniting without actual contact, and this has been experimentally demonstrated in the case of ice and water. This view has also a bearing upon some of the experiments of Mr. Spring, in which sulphur, mercuric chloride, or some other substance capable of giving off vapor or of deliquescing formed one of the reagents.

Vapor-density determinations of bismuth, arsenic, and thallium have been carried out by Dr. Biltz and Prof. Victor Meyer at the extraordinary temperatures of from 1650° to 1750°C. , or from 200° to 300° higher than had been employed before. At these temperatures bismuth is readily and completely volatilized. The values obtained for the vapor-density correspond more

closely with the supposition of a molecule of one atom, and show that the two-atom constitution is impossible. The results in the case of arsenic agree with the assumption of a two-atom molecule. Thallium is normal or one-atomic; but it is vaporized with great difficulty. Cuprous chloride gave densities corresponding to the formula Cu_2Cl_2 . Sulphur, iodine, and mercury gave results confirming the stability of molecules consisting of two atoms of sulphur and single-atom molecules of iodine and mercury.

The vapor densities of the chlorides of chromium have been for the first time determined by Profs. Nilsen and Pettersson, with the result that chromium must be regarded as a triad element. The old formula for chromic chloride, Cr_2Cl_6 , must be abandoned for the simpler formula, CrCl_3 . The determination in the case of the lower chromide was made under great experimental difficulties, on account of the exceedingly high temperature required for its volatilization. The results gave a considerably lower vapor-density than the number required for Cr_2Cl_4 , and indicated that at a high enough temperature the value corresponding to CrCl_2 would be obtained. Hence chromous chloride resembles ferrous chloride, with the single difference that it is much more difficult to volatilize.

Experiments described by Profs. Nilsen and Pettersson have led them to the conclusion that the vapor-density of aluminum chloride decreases continuously and almost regularly up to 800°C ., when it becomes practically constant for four or five hundred degrees of temperature; and that although the value 9.2 is found somewhere between 200° and 400° , this value does not remain constant for a sufficient interval of temperature to enable us to assert the existence of molecules of the composition Al_2Cl_6 .

Moisture has been found by H. Brereton Baker to exert an important influence on the combustion of carbon. Experiments for the further determination of this influence showed that hydrogen, both free and combined, aided the union of carbon with dried oxygen. Three other elements, sulphur, boron, and phosphorus—in both the red and yellow modifications—were found to have their combustion influenced by the dryness of the oxygen. A chemical union took place, the extent of which varied with the dryness of the substance, but it was not manifested by flame. Ordinary phosphorus was obtained so pure as not to glow in the oxygen dried by phosphorus pentoxide; but if water was added, combustion at once set in. The combustion of selenium, tellurium, arsenic, and antimony was not effected by the dryness of the gas. Mr. Baker also found that amorphous phosphorus, contrary to the general opinion, is probably capable of undergoing a true combustion in oxygen without previous change to the ordinary modification. It seems impossible to determine directly which of the two oxides is first formed when carbon is burned; but the experiments indicate indirectly that the monoxide is first produced, and, if circumstances are favorable, this is further oxidized to the dioxide.

The physical relations on which metallic luster depends have not been closely determined. Spring, in his experiments on the compression of fine powders—which he prepared by chemical

means when he could—observed among the compressed cylinders, some having a more or less metallic lustre, while others were of a vitreous aspect. Further examination showed that, without exception, the cylinders exhibiting a metallic lustre were produced from opaque, the others from transparent powders. Hence the conclusion that luster is not connected with the specific chemical character of the body, but is a physical property.

A series of experiments illustrating an extreme case of "mass," or "catalytic" action, are described by H. N. Morse and J. White, Jr., of the University of Pennsylvania. The sulphides and oxides of zinc, which are volatilizable with much difficulty when heated alone, are found to be readily volatilizable in presence of their respective metals, by the operation of alternate dissociation and recombination. The phenomenon is more conspicuous in the case of cadmium sulphide than of zinc sulphide; and so readily is that substance dissociated under the influence of its metal that when the temperature is raised rapidly the process goes on with almost explosive violence, and the experiment becomes dangerous.

In an attempt to explain the composition of the elements, A. M. Stapley, accepting the Mendeleeff division into natural families of two groups each, names as the typical elements of six of the families, lithium, beryllium, boron, carbon, nitrogen, and oxygen. Since the properties of the typical element run all through the members of a family, then (on the hypothesis that properties depend upon composition) we should expect it to be found in the formulæ of the remainder. The hypothesis is advanced that the periodicity of the properties of the elements is due to the dependence of the properties of each element upon those of the typical element of the family to which it belongs, together with the mode of its combination with oxygen; in other words, that the elements, with the exception of the first six, are, in a qualified sense, compound oxygen radicles. The reasons for the adoption of oxygen are: 1, the remarkable coincidence of the figures for each family upon this hypothesis; 2, the atomic weights of the oxygen family of elements are whole multiples of that of oxygen; 3, the relations disclosed between the numbers of atoms composing the elements, which can not be other than the result of law; and, 4, the fact that all the elements combine with oxygen, which is also the most plentiful element in nature.

New Substances.—Experiments have been described by Dr. Krüss, of Munich, the results of which indicate that cobalt and nickel contain about 3 per cent. of a new element that is common to both as they are ordinarily prepared, by the removal of which the properties of the metals are slightly modified as to color, etc. The discovery was made by Krüss and Schmidt in the course of their manipulations for the redetermination of the atomic weights of nickel and cobalt. The results of precipitations of gold from the chloride or the sodium ehloride, were not what were expected and could not be made to agree. In seeking for the disturbing cause in these cases, reactions were obtained and compounds that could not be identified with those of any known element. This investigation has

been taken up by Winkler, who reaches a contrary result, finding that the action of cobalt and nickel on a neutral sodium chlor-aurate solution is simple, with no secondary reactions, and thinks that Krüss and Schmidt must have used impure metals. Dr. Fleitmann has also treated various samples of commercial nickel and cobalt oxides in the manner indicated by Krüss and Schmidt with negative results in every case. The authors themselves have in the mean time continued their research and found their conclusions confirmed.

Experiments by R. G. Grissom and B. Thorp show that lead has considerable facility for forming double compounds with the halogens and other analogous radicals and in some cases there are series of such salts with various ratios between the halogens, all of which are stable and crystallize nicely. Among the halogen compounds of lead obtained by these authors are lead chlorosulpho-cyanide (Grissom), lead bromosulpho-cyanide, lead iodiosulpho-cyanide (Thorp), lead chloro-cyanide, lead bromiodide (Thorp), and lead chloro-bromide (Thorp).

A new acid of tin has been obtained by Prof. Spring, consisting of two molecules of a higher oxide, SnO_3 , combined with one of water. By its formula, $\text{H}_2\text{Sn}_2\text{O}_7$, or $2\text{SnO}_3 \cdot \text{H}_2\text{O}$, it appears analogous to disulphuric acid, $\text{H}_2\text{S}_2\text{O}_7$, and dichromic acid, $\text{H}_2\text{Cr}_2\text{O}_7$. The analyses prove that the tin is present in the form of a trioxide, and that at 100°C ., one molecule of water remains combined with it.

A new alkaloid called Imperialine has been isolated by Dr. Fragner, of Prague, from the poisonous plant *Fritillaria imperialis*, or Crown Imperial. It is obtained from the bulb in the form of a yellow precipitate, from the alcoholic solution of which it crystallizes in short needles that become colorless after several recrystallizations, and have a composition pointing to the formula, $\text{C}_{35}\text{H}_{60}\text{NO}_4$. The crystals are sparingly soluble in water, but readily in ether, chloroform, and alcohol, and melt at 254°C . A chloride has been obtained which makes bitter solutions with alcohol and water, and forms salts with platinum and gold.

Several new fluorine compounds of vanadium have been prepared by Dr. Emil Petersen. Those heretofore known containing fluorine and vanadium were oxy-compounds. The most important of the new substances is fluoride of vanadium itself, V_2F_6 , which has been obtained in fine large rhombohedrons of a dark-green color, and is very soluble in water. Other compounds are two probably isomorphous fluorides of vanadium with potassium and with ammonium; another compound with ammonium fluoride which is isomorphous with the analogous chromium and titanium compounds, while the isomorphous group has been completed by the preparation of the aluminum compound; and another pair of isomorphous double salts with cobalt and nickel. A number of oxy-fluorides, derived from vanadic anhydride, V_2O_5 , and analogous to the oxychlorides of phosphorus, have also been obtained in combination with alkaline fluorides.

Hydrate of amidogen, or hydrazine, which has been prepared by Drs. Curtius and Jay, of Erlangen, possesses some very remarkable properties. Gaseous amidogen, which was isolated by

Dr. Curtius in 1877, appears to possess such an intense affinity for water that its isolation in any considerable quantity appears almost impracticable; for in all the reactions yet known in which it is liberated, water is also of necessity a secondary product, and combines with the amidogen at the moment of its liberation, forming the hydrate. It attacks glass energetically, and rapidly destroys cork or caoutchouc. It is strongly alkaline, tastes somewhat like ammonia, and leaves a burning sensation on the tongue. It forms well-crystallized salts with most acids, which are extremely poisonous, and fatal to the lower animals. It is an extremely strong reducing agent, precipitating the most easily reducible metals from solutions of their salts in the cold. From these and its other qualities it appears to be one of the most remarkable liquids yet discovered, and likely to be of great use in chemical operations.

Methyl hydrazine, the simplest derivative of hydrazine or amidogen, isolated by Dr. Gustav von Brüning, at Würzburg, is a clear and very mobile liquid, boiling at 87°C ., and possessing a most violent affinity for water, in which it resembles the recently isolated hydrazine itself. Its odor is very similar to that of methylamine, and the vapor, absorbing moisture and forming minute drops of the liquid hydrate, produces a white cloud in the air. Brought in contact with water, it instantly dissolves with evolution of great heat. Its hygroscopic character is so pronounced that it attacks the skin in the most painful manner, and rapidly destroys corks or caoutchouc stoppers.

A new substance, singular alike in its chemical nature and its properties, has been derived by M. Péchard from oxalic and molybdic acids, and is called by him oxalomolybdic acid. It is a solid, crystallizing in large monoclinic prisms, and forms a well-defined series of salts. It is nearly insoluble in strong nitric acid, but the crystals dissolve in cold water, more rapidly on warming, yielding a colorless and strongly acid liquid. That it is a true mixed acid is shown by the fact that it forms crystalline salts with metals. The crystals, when dry, may be preserved unchanged, either in sunshine or in the dark. But if moist, they quickly become colored blue when exposed to the sun's rays. If characters be written on paper with the solution, they remain invisible in a weak light; but, when exposed to sunshine, they rapidly become visible, and turn deep indigo. It is curious that this effect only happens when the solution is spread over paper or other surfaces, for the solution itself may be kept unaltered in the bottle for any length of time, except for a trace of blue at the edge of the meniscus, when, by surface action, a little is spread against the interior glass walls. If a sheet of paper is immersed in a saturated solution of the acid, dried in the dark, and then exposed behind an ordinary photographic negative, a very sharp print in blue may be obtained by exposure to sunlight for about ten minutes. The color instantly disappears in contact with water, so that if a piece of this sensitized paper be wholly exposed to sunlight, one may write in white upon the blue ground by using a pen dipped in water. If, however, the paper with its blue markings be

exposed to a gentle heat for a few minutes, the blue changes to black, and the characters are then no longer destroyed by water.

A new series of double oxalates of rhodium and the metals of the alkalis and alkaline earths have been described by M. Leidié. The hydrate of rhodium sesquioxide, a substance having the peculiar appearance of a black jelly, which is but slightly attacked by most acids, dissolves readily, when recently precipitated, in a concentrated solution of oxalic acid. On evaporation of this solution, containing presumably rhodium oxalate, no crystalline oxalate is obtained, but only a non-crystallizable transparent mass. If, however, the solution is evaporated along with a solution of neutral oxalate of potassium, sodium, or ammonium, on cooling beautiful garnet-red crystals of a double oxalate are deposited, containing one molecule of the oxalate of rhodium sesquioxide and three molecules of the alkaline oxalate. These salts are analogous to the double oxalates of ferric iron and chromium; but the two series, owing to difference in the water of crystallization, are not isomorphous. Evidence of similarity between iron and rhodium is shown by the fact that their most stable chlorides are those derived from the sesquioxides; but the formation of these double oxalates indicates that the connection is perhaps closer than has hitherto been supposed. And the interest in this connection is not lessened by the fact that iron and rhodium occupy corresponding positions in the eighth vertical group of Prof. Mendeleeff's periodic classification.

Finding that the compounds existing in zincic hydrate have not been definitely determined, A. M. Comey and C. L. Jackson have begun the investigation of the subject with the study of the sodic zincates. They can be prepared by the action of sodic hydrate on metallic zinc, zincic oxide, or zincic hydrate, and the product seems to be the same in every case. A fusible and an infusible sodic zincate are obtained. The fusible salt is the principal product of the reaction, and forms more than ninety per cent. of the whole. As precipitated by alcohol from its solution in aqueous sodic hydrate, it forms a white mass, made of radiating crystals, often of considerable size, and fuses at about 70° C. The infusible salt crystallizes from the alcoholic washings obtained in the preparation of the fusible compound, and is formed in comparatively small quantities not constituting, apparently, more than a few per cent. of the whole product. It crystallizes in white needles, sometimes more than a centimetre long, which form loose radiating groups, usually of a conical shape, but occasionally circular or spherical.

A new compound, containing aluminum in a lower state of oxidation corresponding to ferrous iron, has been obtained by Prof. Hampe-Clausthal. It is a double fluoride of aluminum and sodium, and was produced by fusing cryolite, the natural fluoride of sodium and aluminic aluminum, along with metallic aluminum.

Some interesting new silicon compounds have been described by Prof. Emerson Reynolds. Silico tetraphenylamide ($\text{Si}(\text{NHC}_6\text{H}_5)_4$) is the first well-defined compound in which silicon is exclusively united with the nitrogen of amidic groups, and is formed by the action of excess of

phenyl-amine on silicon tetrabromide. It is crystallized from carbon disulphide in fine colorless transparent prisms, that melt at 132°C. Other compounds are obtained by the action of silicon tetrabromide on the primary thiocarbamide and some of its derivatives—allyl, phenyl, and diphenyl-thiocarbamides.

A new photographic developer, "Eikonogen," is described by Prof. Liveing as appearing to give greater detail than most of the developers now in use. The tone of the negative is also excellent. Eikonogen is the sodium salt of amido β naphthol= β =sulphonic acid.

A series of new aromatic compounds of bismuth have been prepared by Drs. Michaelis and Marquardt. The first member of the series, bismuth triphenyl, is a solid crystallizing in two distinct forms of the monoclinic system. It is obtained by heating the sodium-bismuth alloy with brom-benzene. Other members of the series are bismuth tritolyl, and bismuth trixylyl. Both form good crystals, but no dimorphism was observed. Both compounds by direct addition take up two atoms of chlorine or bromine, with production of compounds in which bismuth assumes its full pentad atomicity, supplying in this way additional proof of the similarity of bismuth to antimony, arsenic, phosphorus and nitrogen.

A carbohydrate of the empirical composition $\text{C}_6\text{H}_{10}\text{O}_6$, possessing properties closely resembling those of the arabin of gum arabic has been artificially prepared by Prof. Ballo, of Buda. Pesth. It was discovered, in the course of an attempt to reproduce the conditions under which the acids of the vegetable world are reduced to chlorophyll as a result of the treatment of ferrous sulphate with tartaric acid. "Iso-arabin," as it is provisionally termed, is an almost colorless syrup, readily mixing with water, does not reduce Fehling's solution, but rotates the plane of polarization to the right, and behaves, generally, like the carbohydrates of the $(\text{C}_6\text{H}_{10}\text{O}_6)_n$ group. The potassium salt crystallizes in large anhydrous crystals. With it a small quantity of its hydrate is also formed, and separates in crystals from the alcoholic washings of the crude iso-arabin.

Two new crystalline compounds of arsenious oxide with sodium bromide and sodium iodide have been prepared by Prof. Rüdorff. They form two additional compounds of an isomorphous group previously discovered by the author. Five members of the group containing potassium and ammonium had been already described; the two new members contain sodium with bromine and iodine.

New Processes.—A new method of obtaining gaseous carbon oxysulphide, COS, discovered by M. Armand Gautier, consists in passing dry carbon disulphide vapor through a heated tube of calcined kaolin. The mixture of gases issuing from the tube, which contains 60 per cent. of carbon oxysulphide, is then freed from its other ingredients. After the experiment, crystals of silica sulphide, SiS_2 , are found in the kaolin tube, and in place of the kaolin, crystals of a sulphosilicate of alumina, or a kaolin in which oxygen has been replaced by sulphur. This result opens up the wide prospect of the formation of a whole series of sulpho-silicates in which the oxygen of natural silicates is replaced by sulphur.

M. Maussier has patented a process for obtaining aluminum by the three operations of desilification, reduction, and liquation. Desilification is effected by treatment with fluorine (in fluoride of calcium) at a high temperature, in the presence of carbon; reduction by incandescent iron and manganese in the presence of carbon; and liquation, which is intended to separate the aluminum from iron and manganese, by causing the melted mass to fall into molds of charcoal. A nearly pure aluminum is obtained.

The details have only recently been published of the combined Leblanc and ammonia alkali process of Parnell and Simpson, which has been worked experimentally in England since 1885. In it, sodium bicarbonate is obtained by treating brine and ammonium sulphide with lime-kiln gases, and the resulting ammonium chloride is reconverted into sulphide by heating with Leblanc tank-waste.

The Weldon-Pechiney alkali process, which is employed at Salindres, France, is based upon the decomposition of moist magnesium oxychloride by heat, which gives free chlorine and hydrochloric acid. By it hydrochloric acid may be made to yield more than 80 per cent. of its chlorine free, against 33 per cent. by the Weldon process, and from 40 to 90 per cent. by the Deacon process. Its effect upon the Leblanc soda industry depends, according to Mr. Spencer B. Newbury, upon the fact that it may furnish a cheap source of chlorine for making bleaching powder. It is especially applicable in places where magnesium chloride is a waste product.

Curious experiments in the volatilization of lead oxide and its action on glass were described by Mr. J. W. Hogg in the British Association. Writing in which lead oxide has been used as a pigment being placed upon a glass plate or platinum foil, a polished plate of glass is placed over this as closely as possible, but prevented by suitable means from actual contact. On heating up to hardly visible redness, a distinct reverse of the design will appear upon the upper glass. The quantity of lead oxide that will produce this effect is not shown by the most delicate balance.

A good experiment in the resolution of an endothermic compound into its elements is described by T. E. Thorpe. In studying the action of the fluid alloy of potassium and sodium on carbon disulphide, the author obtained a yellowish-brown substance that exploded with great violence when subjected to pressure or friction. If the explosion took place in contact with carbon disulphide, that substance was resolved into its elements. A similar decomposition of carbon disulphide into carbon and sulphur can readily be effected by exploding a charge of fulminate within a tube containing carbon disulphide vapor.

The cocaine extracted from coca-leaves contains a number of other alkaloids from which it must be separated, which have hitherto been regarded as of no value. A method has been devised by C. Liebermann and F. Giesel for converting them, by boiling with hydrochloric acid, into ecgonine; this into the benzoyl derivative; and the benzoyl ecgonine into methyl-benzoyl-ecgonine, or cocaine. Thus the whole product of the extraction process is converted into the valuable cocaine.

Adolphe Carnot's new process for the volu-

metric determination of silver, mercury, and thallium by means of potassium iodide is founded on the insolubility of the iodides of those metals in a nitric solution, provided that such solution contains no alkaline iodide. The potassium iodide employed as a reagent is poured little by little into the acid solution until the starch used as an indicator is colored by the iodine. The liberation of the iodine is due to the presence of a very large proportion of nitric acid. The silver or mercury iodide may be collected and weighed; or the reagent may preferably be used as a standard solution, and the volume of the liquid necessary for precipitation measured.

Industrial Chemistry.—The effective disposal of the immense amount of sulphurous tank-waste which is developed in the ammonia process for making soda has been a great source of expense, and has presented a problem which has only recently been solved. All the sulphur used in making acid for the alkali industry appears at the end of the process in this waste. The process introduced by Chance Brothers, in 1888, seems to obviate the difficulties which have hitherto been met. It depends upon the decomposition of the waste by carbonic dioxide. The resultant gas is of constant composition, contains over 30 per cent. of hydrogen sulphide, and is of suitable strength for burning to sulphur dioxide for the manufacture of sulphuric acid, or for the preparation of sulphur by the "Claus Kiln," in which the hydrogen sulphide is burned with the necessary amount of air to produce water and free sulphur. It is possible that this method, together with the current low price of pyrites, will turn the tide again in favor of the Leblanc process.

In modern burners for smalls in preparing sulphuric acid from pyrites, and especially with the Spence furnace, it is possible to burn the pyrites down to 1 per cent. for sulphur. The resulting cinders from non-cupreous pyrites consist chiefly of ferric oxide, and are nearly free from phosphorus. Such cinders are valuable as iron-ore. Cinders containing notable quantities of copper are treated by the wet extraction process. If much silica and little silver are present, the cinders are smelted with the addition of raw pyrites in the form of "fines," by which a "matte" is obtained of from 50 to 60 per cent. of copper. The iron and silver contained in the cinders are, however, lost. But if a determined proportion of silver and little silica are present, the Henderson wet process is used for the extraction of copper and silver. At Elizabeth, N. J., and Natrona, Pa., the cinders are roasted with salt. The resulting cinders are lixiviated with water, and then with the dilute acid obtained in the operation; and the silver is precipitated by potassium iodide or hydrogen sulphide, and the copper by scrap iron.

According to Spencer B. Newbury's review of the "Sulphuric Acid Manufacture" in the "American Chemical Journal," chamber acid has generally a strength not over 50° B., corresponding to about 62 per cent. of H_2SO_4 . This is strong enough for the manufacture of superphosphates, ammonium sulphate, and the salt-cake process. Acid of greater strength is needed for refining petroleum and making nitric acid and nitro-compounds. Acid from the Glover

tower may reach a strength of 62° B., corresponding to 81.7 per cent. of H_2SO_4 . Beyond this point the concentration must be carried on in platinum stills or glass retorts. Since acid from the Glover tower can not generally be concentrated in platinum, on account of the deposition of ferric sulphate, it is first concentrated in lead pans to 60° B., and then run into the stills. Platinum is liable to corrosion, especially if the acid contains nitro-compounds or considerable quantities of arsenic. The nitro-compounds may be removed by adding ammonium sulphate, which gives rise to water and free nitrogen. Cast-iron retorts have been successfully used for the final concentration, which may be carried on in them up to 98 per cent. H_2SO_4 . By using glass, acid from the Glover tower may be concentrated directly, without difficulty from the presence of arsenic or nitrogen compounds.

The same writer reviews the present state of the alkali industry in the United States; while a small amount of Leblanc soda was formerly made in this country, the industry is not known to exist here at present. Caustic soda has been made by the cryolite process for many years by the Pennsylvania Salt Manufacturing Company, at Natrona, near Pittsburg. Most of the soda ash used for glass and soap making was, until recently, imported from England. The manufacture of ammonia soda was begun about 1882 by the Solvay Process Company, at Syracuse, N. Y., and their production amounted, in 1888, to 60,000 tons, or one third of the total quantity consumed in the United States. Caustic soda is also made there on an extensive scale. Dr. Francis Wyatt has urged the adoption of the Leblanc process in this country, as best suited to our conditions, but the success of the ammonia process at Syracuse shows that that also can be made profitable here.

The application of a cheap method of recovering the chlorine of the salt treated by the ammonia-soda process, which is now lost as calcium chloride, and making it available for bleaching, etc., would contribute greatly to assuring the supremacy of that method. Many attempts to accomplish this have been made, but as yet no commercially successful process has been made public. Among the methods that have been experimented upon are the decomposition of calcium chloride by means of silica and clay at a high temperature (Solvay); the decomposition of ammonium chloride into ammonia and hydrochloric acid (Mond); the conversion of calcium chloride by the addition of lime into the oxychloride and the decomposition of this by heating in a current of air; and Mond's method of obtaining ammonia and chlorine from ammonium chloride, which is called by Spencer B. Newbury practically an application of the Weldon-Pechiney to the ammonia process. Ammonium-chloride vapor is passed over heated magnesia, to which 5 or 10 per cent. of sodium or potassium chloride has been added. Ammonia and steam are produced, and magnesium chloride remains. The latter is then decomposed by heating intensely in a current of air; chlorine is given off and magnesium oxide is left behind to be again treated with ammonium chloride. The commercial practicability of this process has not been reported upon.

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In Dr. Netto's process, which is at work on the Tyne, for manufacturing aluminum from cryolite, the cryolite is first fused with salt in a reverberatory furnace; then run out into converters in which sodium is gradually added. Sodium fluoride and metallic aluminum are formed. The sodium is obtained by allowing molten caustic soda to flow gradually on to charcoal contained in a cast-iron retort heated to dull redness. The sodium carbonate formed in the reaction sinks to the bottom of the retort. The greater concentration of the caustic soda thus produced enables the temperature to be kept lower than in the Castner process.

Analytical Chemistry.—A new method of chemical analysis, in which capillary attraction plays an important part, is described by Charles W. Phillips. One of its peculiar advantages, as presented by the author, is that experiments can be filed away for future reference, and in medico-legal investigations the actual evidence can be carried into court and filed away with other legal documents. Test papers are prepared by dipping, chemically pure, white filtering papers, having a close grain, severally, into solutions of ferrocyanide of potassium, neutral chromate of potassium, bromide of potassium, and hyposulphite of sodium. The solution to be tested is dropped from a tube upon one of these papers, and the reaction compared with a set of sample standard reactions of the various elements and compounds, with which the analyst should already have provided himself. The author has tested and describes in his paper the reactions of all the important metals of the 6 groups, with 4 reagents, making in all 116 reactions.

In testing for sulphur according to Schönn's method, by heating an organic substance with a metal (sodium), dissolving the sulphide formed in water, and adding a solution of sodium, nitroprusside, Charles W. Marsh found powdered zinc a more convenient substance for decomposing organic bodies, and at the same time uniting with the halogens to form chloride, bromide, or iodide, as the case might be—all substances soluble in water. From the water solution the corresponding silver salt could be precipitated, and that would aid in identifying the halogen in the substance treated. In substances containing sulphur, zinc sulphide would be formed, and could be determined by convenient tests. The method of procedure thus outlined was tried on many organic substances containing chlorine, bromine, iodine, and sulphur, and gave the expected results. It is claimed that, by using this process, the substances in question can be accurately and rapidly detected in organic compounds by the use of apparatus and chemicals ordinarily found in chemical laboratories.

Analyses by Ira Remsen and W. M. Burton indicate that the substance known commercially as saccharin is a mixture of para-sulphamino-benzoic acid, benzoic sulphinide, and acid potassium o-sulpho-benzoate, and that the amount of the sulphinide present is somewhat less than 50 per cent. The sulphinide is the only constituent of commercial value, and is rated as having about 300 times the sweetening power of cane sugar. It follows that commercial saccharin, instead of being "300 times as sweet as sugar," is not more, and is probably considerably

less, than 150 times "as sweet as sugar." It would, the authors think, be nearer the truth to say that commercial saccharin has a sweetening power about 125 times as great as that of cane sugar.

Examining 36 samples of wine, obtained in the local market, for adulterations, C. A. Crampton found a distinct test for boracic acid in all but two of them, while it did not appear probable that that substance had been introduced to all of them for purposes of preservation. Baumert, who had made the same observation in some California wines, knowing that some California soils contained borax, supposed that the plants had derived this constituent from the soil. But the test was also obtained by the author in wines from New York, Ohio, North Carolina, and Virginia. Prof. Rising, of California, suggested that boracic acid was a normal constituent of grape juice, at least in California. Soltsien concluded, from other analyses, that it was not an unusual constituent of wine ash. Ripper found it as a normal constituent of 1,000 samples of German and foreign wines, and of various parts of different grape stocks. Baumert has since found it in every case. Mr. Crampton has applied the test to other plants than the vine, and has found boracic acid in some, as in the peach and watermelon, but not in all, whence he concludes that it occurs more generally in plants than has been supposed, but not universally.

It has been observed by Edgar F. Smith and Lee K. Frankel that mercury can be electrolytically separated without difficulty from solutions containing a large excess of an alkaliue cyanide, and with comparatively weak currents. With copper solutions the metal would not separate until the alkaline cyanide had completely disappeared, and the presence of copper generally, in solutions containing both metals, exercised a considerable retarding influence upon the precipitation of the mercury. It was ascertained that the cyanide method is not applicable to the separation of silver and copper.

A method is described by Leo Vijnon for the volumetric determination of carbonic acid in water, whether free or in a state of semi-combination, by means of a standard solution of calcium hydroxide, with phenolphthalein as an indicator. It depends upon the action of the acid in decolorizing the red liquid which is formed when certain proportions of lime-water and the saturated alcoholic solution of phenolphthalein are mixed.

Samuel C. Hooker has employed the green coloration given to the sulphuric-acid solution of carbazol by adding nitric acid as the basis of a process for the estimation of nitrates in natural waters. The extraordinary delicacy of the reaction renders it particularly suitable for the purposes of water analysis, and makes it possible to determine a quantity of nitric acid containing as little as $\frac{1}{100000}$ of a milligram. It is not, however, peculiar to nitric acid, but appears in contact with all oxidizing agents. Of these, however, nitrous acid and ferric iron are the only ones likely to be found in natural waters in appreciable quantities, and are, therefore, the only ones requiring special attention.

The Kjeldahl process has been successfully applied by Messrs. Drown and Martin to the deter-

mination of the total organic nitrogen existing in waters. From their experiments the authors conclude that the nitrates and nitrites do not interfere with the accurate determination of the organic nitrogen. The error which might otherwise be caused disappears under the conditions of great dilution which exists in natural waters.

A report is given by Dr. T. M. Brown and Henry Martin of experiments in the determination by the Kjeldahl method of the organic nitrogen in a large number of natural waters of Massachusetts during the three successive months of June, July, and August, 1888. It is noted that the organic nitrogen in the surface waters examined is in general about double the albumenoid ammonia. In the ground waters the relation of the albumenoid ammonia is still less. But too much importance must not be given to this relation in the latter case, because, from all the sources of error not having been known at the time, the figures given for the organic nitrogen are a little too high.

The peculiar feature of Dr. Bennett F. Davenport's modification of Wanklyn's method of milk analysis is the use of an evaporating capsule (of platinum) of such relatively large area as will leave the residue thin enough to be readily exhausted of its fat in the subsequent treatment with boiling petroleum naphtha. The curvature of the capsule is also adjusted so as to correspond with that which the milk assumes when drawn up the rim by capillarity, whereby a uniform thickness of deposit is assured. The process is expedited by using a closed water-bath.

Satisfactory experiments in the determination of carbonic acid and moisture in the air by gravimetric methods are described by J. S. Haldane and M. S. Pembrey. The methods are not new in general principle, but by attention to details which are described in their paper the authors found them exceedingly convenient and much more accurate than the corresponding methods in ordinary use.

Mr. W. L. Dudley describes some modifications of the methods of organic analysis by combustion which appear to simplify and facilitate the procedure. The process may be applied with suitable modification to liquids, both to those having high boiling-points and to volatile liquids.

A method for the analysis of butter, oleomargarine, and kindred substances, in use by H. N. Morse and W. M. Burton, depends upon the fact that the relative quantities of alkali required to neutralize the soluble and insoluble acids are constant for one fat or oil, but variable for different fats or oils. The authors claim as its advantages, that it is volumetric throughout; that it obviates the necessity of weighing the specimen or fat; and that it readily discriminates between genuine butter and any mixture of cocoanut-oil and other fats or oils. That is, it succeeds at that point where the methods of Helmer and Koettstorfer may fail.

Chemical Synthesis.—The artificial synthesis of glucose has been so perfected that the product is now obtained in considerable quantities; and it will also ferment with yeast like natural glucose, and like that substance will yield, on reduction with sodium amalgam, the hexhydric alcohol mannite. As obtained by the

improved processes of Prof. Emil Fischer and Dr. Tafel, it ferments rapidly with beer-yeast, evolving abundance of carbonic anhydride at the ordinary temperature. It reduces Fehling's solution, and differs from natural dextrose and lævulose only in being optically inactive.

The synthesis of urea has been effected by Drs. Behrend and Rosen in a manner which settles its constitution as according to the formula of Medicus and Fischer. That formula makes it a simple combination of iso-dialuric acid with the elimination of water.

Atomic Weights.—Bohuslav Brauner, discussing the standard of atomic weights, after citing Marignac's reasons for preferring $O = 16$, $H = 1.0024$ to the system which makes hydrogen the unit and $O = 15.96$, asks, "Why should we make our atomic weights dependent on the ratio of hydrogen to oxygen, a value which, besides changing from experiment to experiment, is the most difficult of all atomic ratios to determine accurately, its slightest variation causing all other atomic weights to vary the more the higher they are? One way to get out of the difficulty would be to take oxygen as unity, viz., $O = 1$ or $O = 100$. This would, however, give numbers perfectly impracticable and absolutely impossible to remember. Would it not be better to assume $O = 16$ (without regarding Prout's hypothesis in its original rough form as correct), so as to make the atomic weights of all elements real 'constants of nature,' depending on a constant basis, and to change their values only when a more exact determination replaces a previous less exact one?"

Dr. J. H. Gladstone and Mr. W. Hibbert have sought to determine the atomic weight of zinc by applying Faraday's law of electrolysis. A series of copper, silver, and zinc voltameters were arranged in a simple circuit, and the quantity of zinc dissolved was compared with the weights of deposited silver and copper. From the mean ratio of the equivalents of silver and zinc the atomic weight of the latter was calculated—silver being taken at 107.93—as 65.44; or if silver is taken at 107.66, as 65.20. The copper sulphate voltameter is not as accurate as the silver one. It gave, however, the atomic weight of copper being 63.33, 65.37 as that of zinc.

The fundamental idea of a method employed by W. A. Noyes for determining the atomic weight of oxygen is that by passing hydrogen into an apparatus containing hot copper oxide, and condensing the water formed within the same apparatus, the weight of the hydrogen can be determined by the gain in weight of the apparatus. The mean result of six determinations made by this method, the processes of which are related in detail in the paper, gives $15.886 \pm .0028$; or, if the correction for nitrogen be omitted, 15.867, or almost exactly the same as Cooke's final mean (15.869). This makes it seem probable to the author that Cooke's hydrogen was contaminated with a trace of nitrogen. The results obtained, the author believes, show that the accidental errors of the determination have been made very small.

The atomic weight of chromium has been determined by Mr. Rawson, of University College, Liverpool, who used a process remarkable for its simplicity. This was reduction of a

known weight of pure ammonium dichromate with alcohol and hydrochloric acid to chromic chloride, and subsequent estimation of the oxide produced by direct precipitation with ammonia. The mean of the values from six experiments was 52.061.

The atomic weight of tellurium has been placed, after the determinations of Berzelius and Von Hauer, at 128. The properties of the substance, however, indicate that it belongs to the sulphur group of elements, and that its position in the periodic system lies between antimony, atomic weight 120, and of iodine, atomic weight 127. With a view of solving the problem thus presented, Dr. Brauner has attempted a redetermination of the atomic weight of tellurium, from which he has found it 127.61, still above that of iodine. Hence it seems to come out the first element yet found the properties of which are *not* a function of its atomic weight. Dr. Brauner finds, however, as the result of fractionation that his specimen is not pure tellurium, but consists of probably three elements—pure tellurium mixed with smaller quantities of two other elements of higher atomic weights; and he has since been engaged in studying the nature of these foreign substances, and in the endeavor to isolate pure tellurium. In his latest memoir he observes that one of the new elements is probably identical with Prof. Mendeleeff's recently predicted dwitellurium, of atomic weight 214; while the other constituent is an element closely allied to arsenic and antimony.

The atomic weight of palladium—the previous estimations being regarded as too high—has been redetermined by E. H. Keiser. The author employed the yellow crystalline palladium diammonium chloride, which was dissociated by heating in a stream of hydrogen. The mean value of two series of analyses—nineteen in all—gave 106.35 as the atomic weight.

Organic Chemistry.—Much light has been thrown on the chemistry of the terpenes and ethereal oils and other related compounds by the investigations of Prof. O. Wallach, of Bonn and Göttingen. Worm-seed oil was found to consist of an oxygen compound of the formula $C_{10}H_{18}O$, which, as it was isomeric with borneol, the author called *cineol*. Studies of its behavior with hydrochloric and hydriodic acids, bromine, and other agents showing that at least one of the terpenes could be characterized by chemical reactions, the investigation was extended to the class generally. The first result was to show that the oxygen compound contained in cajeput oil, and hitherto known as cajeputol, is identical with cineol. It was found further that the hydrocarbon $C_{10}H_{16}$ obtained from orange peel, and known as *hesperidene*, is not identical with cineene, as it yielded a different tetrabromide. With the knowledge that at least two distinct and easily recognizable tetrabromides could be obtained from terpenes, Wallach proceeded to the examination of a large number of ethereal oils, with results that are thus summed up: 1. Those terpenes which are obtained from orange-peel oil, lemon oil, oil of bergamot, oil of caraway, dill oil, erigeron oil, and pine-needle oil are identical. This hydrocarbon is the hesperidene above referred to. 2. The terpenes boiling between 180° and 182° C., and known as cinene, cajeputene,

caoutchene, and disoprene; that portion of the oil of camphor which boils between 180° and 182° ; the product obtained by heating terpenes to 250° to 270° ; and the hydrocarbons obtained by the decomposition of the terpene dichlorhydrate $C_{10}H_{16}, 2HCl$, melting at 49° to 50° , no matter what the source may be—are all identical.

A preliminary paper has been published by Frank D. Dodge on an investigation in which he is engaged of the volatile oils obtained from various tropical grasses of the genus *Andropogon*. Five of them are known in commerce—oils of citronella, lemon grass, Indian or Turkish geranium, and vetivert, or cus cus. The Turkish geranium oil has been known and used since at least the time of Alexander the Great. The grass *Andropogon squarrosus*, Lin., from which oil of vetivert or cus cus is obtained, was probably the "birana" grass with a sweet-scented root mentioned in the Sanscrit classics. It is found in many parts of India and the East, and in the tropical parts of the New World. Mr. Dodge's first paper relates to the examination of citronella oil and its aldehyde, which is found to be easily convertible into a terpene and into cymene, and gives valerianic acid among the oxidation products. The oil of tansy, examined by Bruylants, bears a relation to oil of citronella. It is found to contain an aldehyde, $C_{10}H_{16}O$, the corresponding alcohol, $C_{10}H_{18}O$, and a terpene. Oil of Turkish geranium has been examined by Jacobsen, who found it to contain a monatomic alcohol, geraniol, $C_{10}H_{18}O$. The investigation of these and of the other oils, which are still unstudied, is continued.

An investigation has been published by W. E. Stone, of the University of Tennessee, concerning arabinose, a saccharine substance discovered and first prepared pure by Scheibler, from the cellular substance or pulp of sugar beets, or from gum Arabic. It is also found in cherry gum and tragacanth gum. The investigation concerned the relations of arabinose with the carbohydrates and to fermentation and the action of strong acids. The results showed that while galactose, lævulose, dextrose, and sorbose, types of the true carbonates, are all fermentable, arabinose is not subject to alcoholic fermentation. It forms no appreciable quantity of lævulinic acid when treated with strong mineral acids; and when distilled with dilute sulphuric acid yields large and constant quantities of furfural, which the true carbohydrates do not. The fact that the last property is common to it and xylose, besides distinguishing that substance from the true carbohydrates, points to a relationship between the two. Arabinose and xylose are formed from substances contained in the seed coats of cereals and probably in numerous other natural products. Arabinose also differs from the true carbohydrates in its composition, which is expressed by the formula $C_5H_{10}O_6$.

When many plants of the higher botanical orders are exhausted with petroleum-ether or alcohol, crystalline compounds may be separated from the extracts. These crystals, obtained from *Cascara amarga* and *Phlox Carolina*, have been analyzed by Helen C. DeS. Abbott and Henry Trimble, who conclude that the compound is a solid hydrocarbon. While liquid hydrocarbons are abundant in the plant kingdom, a similar

occurrence of compounds of this class in a solid or crystalline condition appears not to have been noticed.

By treating purified filter paper or fine carded cotton with sulphuric acid, Guignet has obtained a colloidal form of cellulose soluble in water. Before washing the cellulose forms a transparent gelatinous mass which is not affected by contact with acid, but which at $100^{\circ}C$. is rapidly converted into gelatin. The solution of colloidal cellulose in water is slightly milky, is readily filtered, deposits no precipitate, is not altered by boiling, is slightly orange yellow in color, and is precipitated, like other colloids, by certain acids and salts. It appears to be the substance with which the pores of parchment paper are filled.

Miscellaneous.—From experiments with "photosalts" produced by chemical means which appeared identical with those produced by light, Mr. M. Carey Lea came to the conclusion that those substances consist of a silver haloid (normal chloride, bromide, or iodide) combined with the corresponding subsalt, not in equivalent proportions, but after the manner of a "lake"; the subsalts, being unstable substances when isolated, acquiring greater stability by the union. This view was disputed by Dr. Hodgkinson, in England, whose conclusion was that an oxysalt and not a subsalt was formed. Although he regarded the evidence of the formation of a subsalt (subchloride) amply sufficient, Mr. Lea made further experiments, the results of which appear to establish his theory.

Prof. J. W. Mallet has found that the greater part of the alum baking-powders in our markets are made with alum, acid phosphate of calcium, bicarbonate of sodium, and starch; that, giving off very different proportions of carbonic acid gas, they require to be used in different proportions with the same quantity of flour; that, while there is generally an excess of the alkaline ingredient in them, the acid is sometimes in excess; that they yield on moistening small quantities of aluminum and calcium in a soluble condition; that, after baking, they leave most of their aluminum as a phosphate or as a hydroxide, both of which tend to produce an inhibitory effect on gastric digestion, and may probably also bring about partial precipitation in insoluble form of some of the inorganic matter of food. Hence the conclusion is deduced "that not only alum itself, but the residues which its use in baking-powder leaves in bread, can not be viewed as harmless, but must be ranked as objectionable, and should be avoided when the object aimed at is the production of wholesome bread."

A systematic study of the action of definitely related chemical compounds upon animals has been begun by Prof. Wolcott Gibbs and Dr. H. A. Hare, the first paper on which is published in the "American Chemical Journal" for October. Its object is to determine whether it is possible to trace general laws in the action of definitely related compounds upon the animal organization, so that it will be possible to predict, within certain limits at least, what the action of a given substance will be and what modifications that action will undergo when chemical changes are produced by the replacement of particular elements or groups of elements, or by other definite

and generally applicable chemical processes. The experiments so far related were made with ortho, meta, and para nitrophenols, nitranilines, amido-benzoic acids, and nitro-benzoic acids.

Notwithstanding the *dictum* uttered by the French Academy of Medicine many years ago that no arsenic could be detected in the clear glasses met with in commerce, all the arsenic being volatilized during the processes of manufacture, the presence of that substance has been recognized in later years. An investigation by John Marshall and C. S. Potts was instituted to determine the presence of arsenic in glass of American and of foreign manufacture; the action of the caustic alkalies, strong acids, and ordinary laboratory reagents upon the arsenical glass of the bottles in which they were contained; and the occurrence of arsenic in commercial caustic soda, sodium carbonate, and in sodium hydrate and sodium carbonate sold as chemically pure. Every sample of clear glass examined except one and all the caustic soda except one sample, which was made by the Solvay process, contained arsenic. The caustic potash, ammonium hydroxide, and the common reagents examined were found to be free from arsenic. The strong acids, ammonium hydroxide, and ordinary reagents had no dissolving action upon the surface of arsenical glass bottles, whereas solutions of the fixed alkalies had such solvent action.

Additional experiments have been made by W. N. Hartley on the effects of acids upon ultramarine. The author had expressed the conclusion, in the "British Association" in 1886, that, in water-color drawings in which ultramarine was mixed with red for the production of certain effects, the colors were liable to suffer from the action of acids such as might be found in the drawing paper, or in the damp atmosphere of towns where much coal is burned. In after experiments, powders of distinctly colored portions of specimens of lapis lazuli exposed to sulphuric acid were attacked, and in nearly every case completely decolorized. Where the blue color was not quite destroyed, examination with a powerful lens showed that blue particles remained which had not been finely enough powdered. Several minute lumps of the color were observed to be etched by the acid, so as to show white spots here and there. Hence the fineness of the powder has much influence on the facility with which the mineral is attacked. Some of the powdered mineral was made red hot and thrown into dilute acetic acid. After waiting for five minutes the blue color was not appreciably diminished. Under these circumstances, however, the color was in considerable quantity, while in the previous experiments the powder was much finer and in a thin layer, and, though there was a slight action immediately, it was about an hour before the color was completely destroyed. The effects were unequally rapid in the different specimens. It does not appear, therefore, to the author that his statement concerning the use of ultramarine as a pigment upon drawing paper requires modification.

The absorption spectrum of oxygen has engaged attention on account of the important part which that element plays in the world, and on account of the remarkable character of the absorption in exhibiting bands of two different

classes, and variable under varying circumstances of condensation and combination. The study of it is expected to throw light on the nature of the molecular changes brought about by different circumstances. In the experiments in this field described by Liveing and Dewar the absorption of the ultra-violet rays did not extend quite so far down as the limit of the solar spectrum, though it approached it. A diffuse edge of gradually diminishing absorption succeeds the complete absorption, and this, with other facts makes it likely that the limit of the solar spectrum is due to the absorption of ordinary oxygen. Observations on atmospheric air were made under the same circumstances as those on oxygen, and the two sets were fairly comparable. The observations on the absorption of liquid oxygen confirmed those of Olzewski. The absorption by ozone extended far below the limit of the solar spectrum, and no identity was traced between the phenomena and those exhibited by ordinary oxygen.

The specific gravity of a large series of samples of fats and oils has been examined by C. A. Crampton, of the laboratory of the United States Department of Agriculture, by means of the Archimedian method. While the plummet of a Westphal balance is used, the weighings are made with an ordinary balance. The densities of certain fats which are solid at 35°, were taken with an adaptation of the ordinary specific-gravity flask. The specific gravities were thus taken of the more important samples, including both the harder fats and the lards and oils. The co-efficients of expansion were also ascertained in all cases. Many of the samples being typical, the author has published a table of the results obtained, which he thinks may prove valuable in establishing standards. The results add testimony to the accuracy of the Archimedian method for taking specific gravities.

The International Chemical Congress met in Paris, July 29, under the presidency of M. Berthelot. It was predominantly attended by French-speaking chemists. The proceedings related largely to nomenclature. Some of the results were of narrow technical application, and others were most interesting to French chemists. Among those of more general interest and application were the conclusions that the two carbon atoms in ethylene and the two hydrogen atoms in urea shall be distinguished by the letters *a* and *b*; that the aldehydes shall be named after their corresponding alcohols; that the suffix *-ol* shall be reserved as far as possible for alcohols, and in the hydrocarbons shall be replaced by the ending *-ene*; and that the prefix *bi-* shall in future be reserved for bodies formed by the union of two radicals; while the prefix *di-* shall be used, as at present, to denote bodies formed by double substitution. An international committee was constituted to promote uniformity of chemical nomenclature, on which Prof. Ira Remsen was invited to represent the United States.

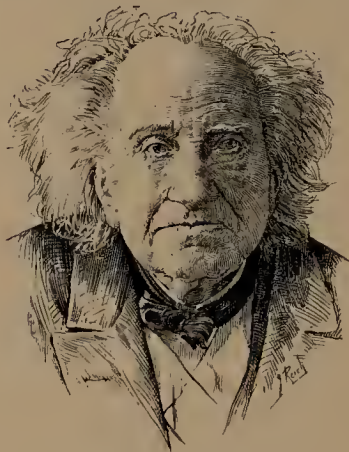
Mr. Thomas B. Warren has found that pea-nut oil, when electrified, becomes extremely sensitive to heat. Even slightly touching the finger to a glass inclosing the experimenting tube caused deflection of the galvanometer; and this while the space between the two glasses was half an inch and packed with non-heat-conducting ma-

terial. Even the best solid conductors—such as copper and silver—do not show such remarkable behavior to heat, and no other oil behaves in so pronounced a manner; but a mixture containing pea-nut oil shows the susceptibility in a degree proportional to the quantity of that substance present.

A series of experiments upon combustions in nitric-acid vapor have been described by Prof. P. T. Austen. A glowing chip of wood was inflamed and burned energetically, much as in oxygen; but, as the red tetroxide of nitrogen— N_2O_4 —was formed by the reduction of the nitric acid, a ruddy halo was seen to play around the flame. Charcoal burned brilliantly, and the scintillations in the red tetroxide gas produced a very fine effect. A steel watch-spring may be burned when started with sulphur, but with an effect different from that in oxygen; a red halo is formed around each melted globule of iron as it falls. Phosphorus burns with great beauty, with a dazzling white flame, passing into deep red at the edges. Most beautiful effects are obtained by the combustion of readily oxidizable gases from jets suspended in the nitric-acid vapor. Hydrogen burns with an intensely white flame, very different from the flame in oxygen, surrounded by a deep-red envelope. Coal gas continues to burn with a white center, enveloped, as in the case of hydrogen, with a red halo. When first introduced, the flame becomes musical; then it degenerates into a series of rapid, slight explosions, and at length, after a certain amount of nitrogen tetroxide has formed, burns quietly. Sulphureted hydrogen burns with a bright-yellow flame, and the flask becomes filled with a cloud of minute chamber-crystals, resulting, from the action of the sulphur dioxide and water formed upon the tetroxide of nitrogen simultaneously produced. Ammonia burns with a flame consisting of a bright-yellow nucleus, surrounded by a greenish-yellow envelope. This passes into an outer envelope of carmine red, which deepens as the amount of tetroxide of nitrogen increases.

CHEVREUL, MICHEL EUGÈNE, a French chemist, born in Angers, France, Aug. 31, 1786; died in Paris, April 9, 1889. He was the son of a physician of high repute, who held a chair in the old University of Angers, was a prolific writer, and died at the age of ninety-one. His mother, Madeliene Bachelier, was a woman of ability, survived her husband, and died at Angers after attaining her ninety-third year. The boy passed his childhood at home, and after the revolution spent five years at the Central School. Among his recollections of those early years, he mentioned the guillotining of two young girls who were accused of hiding some refractory priests, and he was a witness of the battle of Murs Rock between the Vendéans and the Republicans, which he saw from the country home of his parents on the banks of the Loire. In 1803 he went to Paris, where he entered the laboratory of Louis Nicolas Vauquelin, who was then Professor of Chemistry in the faculty of medicine. So rapid were the advances made by Chevreul that three years later the entire direction of the laboratory was given to him. He became preparator of the chemical course in the Museum of Natural History in 1810, and in 1813 was made Professor of Chemistry at the Lycée

Charlemagne. About this time he began his studies in organic chemistry—then an almost unknown science—and gave to the Academy of Sciences his results, which were collected into his "*Recherches chimiques sur les corps gras d'origine animale*" (1823). He showed that oils and



MICHEL EUGÈNE CHEVREUL.

fats, which till then had been regarded as pure immediate principles, were formed of substances among which were margarine, oleine, and stearine. The latter substance, by furnishing stearic acid, gave rise to the manufacture of stearine candles. His labors on fatty bodies, and his theory of saponification, created new industries and opened wider horizons to the theories of organic chemistry. According to J. B. Dumas, his great contemporary, this work formed a perpetual model for chemists, and demonstrated the method by which hundreds of millions of artificial substances could be prepared. In 1824 he was appointed director of the dye-works and special Professor of Chemistry at the Gobelins factory, and thereafter he devoted his attention largely to the study of color. He showed that the harmonies of colors are due to immutable laws, which he revealed, and the certainty of which is demonstrated by calculation; he also discovered the laws of the simultaneous or successive contrasts of color; the theory of colored shadows; and the art of defining, by means of a chromatic circle, every shade by a figure. His publications on this subject include "*Leçons de chimie appliquée à la teinture*" (1823-'31); "*De la loi du contraste simultané des couleurs et de l'assortements des objets coloriés*" (1839); and "*Des couleurs et de leurs applications aux arts industriels à l'aide des cercles chromatiques*" (1864). The appointment at the Gobelins he held until his death, and a few years ago, when asked to give way to a younger man, he refused, claiming that he was still sufficiently active to do the work. In 1830 he succeeded Vauquelin as Professor at the Museum of Natural History, and continued in that place until 1883. He took up his residence in the quarters assigned to him near the Jardin des Plantes, and there he died. During the Franco-Prussian War he endured the privations of the siege, and did not leave Paris. More than eighty Prussian bombs shattered the galleries and broke the cases of his museum, some of them even

bursting in the vicinity of his laboratory. Indignant at this treatment, he caused to be entered in the proceedings of the Academy of Sciences, on Jan. 9, 1871, this protest: "The garden of medicinal plants, founded at Paris by an edict of Louis XIII, in the month of January, 1626, became the Museum of Natural History, by a decree of the Convention, June 10, 1793, was bombarded under the reign of William I, King of Prussia, Count Bismarck, chancellor, by the Prussian army on the night of Jan. 8-9, 1871; up till when it had been respected by all parties and by all national and foreign powers. E. Chevreul director." These words, carved in marble, have been placed in the Jardin des Plantes. At the close of the war he presented two papers to the Academy, in which he described his experiences during the siege, and complained of the interference of his studies. His first scientific paper, published in 1806, related to a chemical examination of fossils found in the department of Eure and Loire. His other researches include the application of oleic acid to the preparation of wool for cloth, the practice of charring the interior of water-casks, and a great number of technical researches. His last paper, entitled "The Part played by Nitrogen in Vegetable Economy," was presented to the Academy on May 22, 1888. All the articles on chemistry in the "Dictionnaire des sciences naturelles" were written by him, and he was an editor of the "Journal des savants." He published, besides the books already mentioned, "Considérations sur l'histoire de la partie de la médecine qui concerne la prescription des remèdes" (1865); "Histoire des connaissances chimiques" (1866); and others pertaining to chemistry. Several of his works have been translated in English, German, and other languages. He was a member of the international jury at the World's Fair held in London in 1851, and was then awarded a premium for the benefits that he had conferred upon humanity by his researches. Until 1855 he was a member of the jury at every French exhibition, and in 1853 he was awarded the Argenteuil prize of twelve thousand francs by the Société d'Encouragement pour l'Industrie Nationale for his investigations on fatty substances. He passed through the various ranks in the Legion of Honor, until he attained that of the Grand Cross in 1875. Honorary degrees of M. D. and LL. D. were conferred upon him by several universities. In 1826 he succeeded Proust in the chemical section of the Academy of Sciences, and was thereafter a regular attendant every Monday at its meetings. He was early chosen a foreign member of the Royal Society of London, and most of the leading scientific societies of the world had his name on their rolls. In the United States he was one of the foreign associates of the National Academy of Sciences and an honorary fellow of the Association for the Advancement of Science, which distinction—but twice conferred—was given him on the celebration of his hundredth birthday. His centenary was celebrated in 1886 with great rejoicing. At the Academy of Sciences a bronze bust of him, executed by Paul Dubois, was presented to him by his colleagues; and at the Museum of Natural History a statue of him by Guillaume was unveiled, and representatives from scientific societies the world over presented

addresses of congratulation. The Society of National Agriculture, of which he was the only president until his death, gave him a medal. A banquet was given at the Hotel de Ville, in which three hundred and fifty guests participated, and a special representation of the opera was held in his honor. The inhabitants of the Rue Chevreul illuminated their houses and sent a deputation with an address to him. He was active in other than scientific directions. For many years he held the office of Maire of L'Hay near Bourg-la-Reine, where he owned a large farm. He was a captain in the National Guard. He was fond of society, was a regular attendant at the Théâtre Français and the Opera Comique, and even until recent years he could be seen at the winter balls given at the Elysée. From boyhood he was a strict abstainer from all alcoholic liquors and from tobacco, and he attributed his long life and vigorous health to his simple and regular habits. His funeral was conducted with elaborate ceremonies at the Cathedral of Notre Dame, and was participated in by delegations from scientific societies and representatives of the Government. The body was entombed in the family vault at L'Hay. For a list of his publications see "Principaux Travaux de Monsieur Chevreul" (Paris, 1886).—His only son, HENRI, who was born in 1820, and died in Dijon, in March, 1889, lived with his father until late in life, when he settled in Dijon, where he was made mayor. In 1888 he visited Paris to obtain better medical treatment, but his father resented his fragility of constitution, and observed that he never expected to raise that child.

CHILI, an independent republic of South America. (For details relating to area, territorial divisions, and population, see "Annual Cyclopædia" for 1884 and 1888.)

Government.—The President is Don Manuel Balmaceda, whose term of office will expire on Sept. 18, 1891. The Cabinet is composed of the following ministers: Foreign Affairs, Don Isidoro Errazuriz; Interior, Don Ramon Donoso Vergara; Treasury, Don Pedro Lucio Cuadra; Industries and Public Works, Don Pedro Moutt; War and Navy, Don Juan Castellon; and Justice, Señor Ismael Valdes. The Chilean Minister to the United States is Don Emilio C. Varas. The Consul-General in New York is Don Federico A. Beelen. The Consul-General for California, Nevada, and Oregon, resident at San Francisco, is Don Juan de la Cruz Cerda. The United States Minister to Chili is Patrick Egan; the American Consul at Valparaiso is James W. Romeyn.

Army.—The strength of the permanent army, in 1888, was 5,610, consisting of eight battalions of infantry, three regiments of horse, two regiments and one battalion of artillery, and one battalion of engineers. There are 960 commissioned officers. The National Guard numbers 48,854; 40,641 being infantry, 1,730 mounted, and 6,483 artillery.

Navy.—The navy consists of two armored frigates, one monitor, three corvettes, two gunboats, three cruisers, and three pontoons, mounting together 85 guns, registering 16,200 tons, with an aggregate horse-power of 4,200, and being manned by 1,573 sailors. There are also five small steamers and twenty-five torpedo boats.

There are 86 commissioned officers. Chili ordered, in 1889 an armor-clad and two cruisers in France, and two torpedo gunboats in England. The iron-clad is to have a displacement of 6,000 tons, an armament of four 9½-inch guns mounted in two turrets, and a secondary battery of six 6-inch guns. A belt of Creusot steel armor will extend the whole length of the vessel, which will also have an armored deck. The speed is to be seventeen knots with natural draught. The new iron-clad, to be launched by the French Company of the Mediterranean toward the close of 1889, claims to realize the ideal of offensive power sufficient for running fights, with defensive strength adequate to the contest of large armored vessels, while at the same time it possesses perfect manageability and a moderate displacement. The ship is to be named the "Arturo Prat," after the captain of the "Esmeralda," who was killed in the engagement off Iquique in 1879. Its length will be 325 feet, and its breadth 60 feet. Its displacement will be 6,800 tons, and its normal speed, with a horse-power of 8,600, seventeen knots. The central tower is composed of four turrets, each containing a gun workable by hand, and not exceeding 23 tons in weight, which is capable of piercing at 100 yards a plate of 18-inch iron. There are four other turrets, each containing two guns of smaller caliber. The ship also carries four guns for rapid firing, eight mitrailleuses, and four tubes for discharging torpedoes.

Finances.—On July 1, 1889, the foreign indebtedness of Chili was \$39,748,000, while the home debt had been reduced to \$23,834,484. The revenue collected by the Government in 1888 was \$50,183,938, the expenditure amounting to \$46,135,501. Adding surpluses of the kind resulting from former years, the Government had an available fund of savings of \$25,000,000 on Jan. 1, 1889. The budget for 1889 estimated the income at \$50,000,000, and the outlay at \$59,561,880; the receipts for the budget of 1890 were estimated at \$56,000,000. Congress had authorized the Government to raise money by loan in Europe to the amount of £3,000,000 for railroad material to be purchased for Government lines, but it contented itself with floating £1,546,392 4½ per cent. bonds at 101½.

Abolition of Certain Duties.—A law has been enacted, to take effect four months from Aug. 30, 1889, abolishing import duties on machines and tools for the use of agriculture, mining, trades, and industries; pipes or tubes composed of copper, bronze, or iron, galvanized or ungalvanized, knees, joints, "T's" and other such necessary articles; iron or steel wire, galvanized or ungalvanized, up to the number fourteen inclusive, and copper wire, or insulating composition for transmission of electric currents; telephonic and telegraphic instruments, insulators, iron or steel posts, and other special necessities for telegraphs and telephones; the material of iron or steel for the permanent way of either steam or horse railways and also for portable railways; wheels, axles, and felloes of iron or steel for railway vehicles, and the cars for portable railways; iron in plates.

Postal Service.—The number of post-offices in 1888 was 484, which dispatched during the year 15,491,873 letters, 45,571 sample packages,

15,280 judicial notifications, 810,772 Government messages, and 22,360,137 newspapers; together, 38,830,461 items of mail-matter. The receipts amounted to \$464,431.

Railroads.—In 1888 there were in operation 1,096 kilometres of state lines and 1,597 private lines; together, 2,693 kilometres. The total cost of the state lines was \$43,992,873 in 1886; in 1888 it was \$48,297,698. The net earnings in 1886 were \$2,406,050. Early in 1888 1,262 kilometres of new state lines were projected, estimated to cost \$16,200,000, and 894 kilometres of private lines. Among the latter is the Chilean section of the transandine railroad from San Felipe across the Andes to the Argentine frontier, on \$5,000,000 of the cost of which the Chilean Government has guaranteed 5 per cent. interest for twenty years. On April 5, 1889, President Balmaceda laid the first rail on this road at Santa Rosa de los Andes. On the Argentine side of the Andes 1,030 kilometres are in operation; on the Chilean, 133. The gap between Mendoza in the Argentine Republic and Santa Rosa, is 240 kilometres. Out of these, 90 kilometres were nearly finished in the summer of 1889, while on 40 thereof the rails had actually been laid. The Cumbre or Uspalata pass will have to be tunneled on this line a distance of 5 kilometres, at an altitude of 3,185 metres above sea-level. The pass attains a height of 3,967 metres, and is in 33° of south latitude, between the giant Aconcagua (6,834 metres high), and the Tupungato (6,178 metres). This important railway will be ready for commerce before 1892. The Government, on Oct. 17, 1888, made a contract with the "North and South American Railway Construction Company" of New York, to build the 1,175 kilometres of state lines authorized by Congress, for the sum of £3,542,000, a deposit of \$1,000,000 being made by the company as security that the contract will be carried out. These 1,175 kilometres are to be distributed as follows: Victoria to Valdivia, 403; Coihue to Mulchen, 43; Tomé to the line of the Central railroad, 200; Constitución to Talca, 89; Palmilla to Pichilemu, 45; Pelequen to Peumo, 28; Santiago to Melipilla, 59; La Hileria to Cabildo, 78; Los Vilos to Salamanca, 128; Ovalle to San Marcos, 60; Huasco to Vallenar, 48. During the summer of 1889 the company got into financial difficulties, and was declared bankrupt by the Commercial Tribunal of Santiago.

Telegraphs.—The number of offices in 1888 was 313, 240 of them being Government offices. The length of lines was 17,023 kilometres, of which 11,247 belonged to the state. Over the Government lines 572,383 telegrams were sent in 1887, and of these 95,486 were official dispatches. The receipts in the same year aggregated \$480,000.

Steamship Lines.—In the summer of 1889 there were in operation between Chili and Europe the following steamship lines: Two Hamburg lines; the English Pacific Steam Navigation Company's; the Italian Florio and Rubattino line; the French Compagnie Maritime du Pacifique; the Chilean Compañia Sudamericana de Vapores (till recently only a coastwise navigation company, but in future to extend its trips to Liverpool); and the Valparaiso-Liverpool Gulf line.

Commerce.—Chili's foreign trade has of late years expanded as follows, reduced to thousands of dollars:

	1885.	1886.	1887.	1888.
Import.....	40,097	44,170	48,631	60,807
Export.....	51,260	51,240	59,550	73,000
Excess of export...	11,163	7,070	10,919	12,193

The export of nitrate of soda amounted in 1888 to 775,000 tons, that of copper to 30,000 tons, that of wheat to 4,000 tons, while of silver \$1,600,000 worth was exported. The Chilean exportation of nitrate of soda has been as follows:

DESTINATION.	1886.	1887.	1888.
	Quintals.	Quintals.	Quintals.
To Northern Europe.....	7,950,452	13,350,720	14,965,846
To the Mediterranean.....	168,092	237,875	161,631
To the United States on the Atlantic.....	1,436,189	1,532,026	1,482,627
To the United States on the Pacific.....	255,505	229,946	130,921
Total.....	9,805,238	15,350,567	16,741,025

The American trade with Chili exhibits these figures:

CALENDAR YEAR.	Imports from Chili into the United States.	Domestic exports from the United States to Chili.
1888.....	\$2,437,325	\$2,188,259
1887.....	2,631,140	2,376,611

Merchant Marine.—There were afloat under the Chilean flag in 1888, 38 steamers, with a joint capacity of 20,000 tons; 89 barks, with 43,000 tons; 8 ships, with 10,000 tons; 11 brigs, with 3,000 tons; and 33 schooners, with 3,000 tons; together 177 vessels of a joint tonnage of 79,000.

CHINA, an empire in eastern Asia. The highest governmental body under the Emperor is the Neiko or Grand Secretariat, consisting of six members, of whom three must be Manchus and three Chinese. Two of the members, one of Chinese and the other of Manchu origin, are called assistants, and have the duty of seeing that the acts of the superior members conform to the laws and precedents. The functions of the Neiko are to proclaim the edicts of the Emperor, to regulate the laws, and, in general, to counsel the Emperor in affairs of state, all in accordance with the statutes of the empire. This body has, in recent times, lost much of its political importance, the actual direction of affairs having devolved upon the Chun-chi-chu or State Council, the members of which are chosen from among the imperial princes, the members of the Neiko, the heads of the ministries, and the chiefs of other administrations. The members of the Neiko are in the closest contact with the Emperor, to whom they submit all papers, and from whom they receive the replies and instructions on which the Imperial edicts are drawn up; yet since they hold other posts that often require them to reside away from the capital, their collective influence is small, and the proper functions of a cabinet devolve more on the modern and less dignified body. The Chun-chi-chu was founded in 1730, and was originally intended to

be a large council, but in recent times there have been only from four to six members. Prince Kung before his disgrace was the dominating spirit, and since then Prince Shun has had the controlling voice. The social law forbidding a father to serve under his son would require him now to retire from all public functions. The Chun-chi-chu, like the Neiko, has the right of audience with the sovereign, and to it belongs the office of framing all edicts for the Imperial signature. There are six ministries, each presided over by two chiefs, a Manchu and a Chinese, though, in exceptional cases, a single president of higher rank is placed over a ministry. There is also a ministry for the administration of subject countries. The commanders of the military forces at Peking are important public functionaries. Another body of great dignity is the Board of Censors, one member of which must be present at every meeting of an executive department. The superior members of the Neiko in 1889 were Li-Hung-Chang, Olehopu, En-Cheng, and Yen-Ching-Ming; the assistant members, Fukun and Chang-Chi-Wan. The senior Grand Secretary has always been a Manchu hitherto, and Li Hung Chang is the first Chinese to enjoy that distinction. The members of the Chun-chi-chu were Shito, called the Prince of Li, Olehopu, Chang-Chi-Wan, Sun-Yu-Wen, Hsu-Keng-Shen, and Yen-Ching-Ming. When affairs of high moment are under consideration, the Prince Shun, father of the reigning Emperor, is called into consultation.

The Emperor is an absolute monarch, whose will is checked only by the accepted code of Confucius that lays down the proper conduct for the sovereign as well as for the people, and by the unrestricted and unsparing criticism of the censors, who are constantly presenting memorials in which the acts and projects of the Government are judged and compared with the precedents of the past. The present Emperor is Kwangsu, born in 1871, the ninth ruler of the Tsing dynasty, who succeeded to the throne on the death of his cousin the Emperor Tsung-Chi, who died at the age of eighteen, leaving no heir. The former regents, the Empress Tse-Chi and Tse-Ang, chose as successor to the throne Tsait-ien, the young son of Prince Shun, the Seventh Prince, and proclaimed him Emperor on Jan. 22, 1875, under the name of Kwangsu, although the grandchildren of Prince Tun, the Fifth Prince, and of Prince Kung, the Sixth Prince, had better claims to the succession. There was much dissatisfaction in the court at the time, but this soon passed away. The two Empresses ruled as joint regents till 1881, when the Empress Tse-Ang died. During the remainder of the Emperor's minority the Empress Dowager, widow of the Emperor Hieng-fung, acted as sole Regent. On March 4, 1889, the young Emperor assumed the government, the Empress Regent retiring from the direction of state affairs. The Emperor, before taking in his hands the reins of power, married, on Feb. 25, a young woman selected by the Regent, and was given two young sisters as concubines. The retiring Empress Regent, who has practically guided the destinies of China from 1861, when the empire was torn by civil war and humbled by foreign conquest, and has done much to bring about the union and strength that distinguishes

China at the present day, once before resigned ostensibly the control of affairs when her son, the late Emperor Tung-Chc, married and entered on his reign; yet, when he dismissed his Prime Minister, Prince Kung, the Regents interposed, and rescinded the imperial decree. The Empress, in order to remove all doubts of her final retirement and of the unquestionable authority of the Emperor after his marriage and assumption of power, has issued a series of proclamations explaining that a female regency was only a last resort to prevent abuses such as took place in previous dynasties, and that constitutional usages can now be reverted to without detriment to the safety and well-being of the empire. When one of the Censors, notwithstanding these plain assurances, proposed that henceforth certain memorials be made out in duplicate, in order that the Empress Dowager might have a copy as well as the Emperor, he received a severe rebuke from the retiring Regent, and was ordered to report himself for punishment to the proper board. In accordance with the privilege enjoyed by all officials of offering suggestions as to measures to be adopted, honors to be conferred, or censures to be passed on other officials, a high functionary named Wu, who had lately succeeded in stopping the breach in the Yellow River, set forth in a memorial his view that high titles of honor should be bestowed on Prince Shun. This proposal was likewise sternly reprobated by the Empress, who gave to the public in the same number of the "Official Gazette" a memorial from Prince Shun, presented when his son was first proclaimed Emperor, but withheld from publication at the author's request until the Emperor assumed personal control of the Government. In this memorial the Prince expresses his desire that no honors should be given to him, and that persons proposing them should be treated with ignominy as dangerous characters, intriguing to curry favor for the sake of their own advancement. The young Emperor, who has received a thorough Chinese classical education, under his father's supervision, and the accustomed physical training in archery and horsemanship, is described as slow and hesitating in speech, phlegmatic in temperament, strong of will, and not easily diverted from opinions that he has formed.

Area and Population.—The total area of the eighteen provinces of China proper is 1,297,999 square miles, and the population, according to the latest official data, is 382,978,840. The dependencies of China are Manchuria, with an area of 362,310 square miles and about 12,000,000 inhabitants; Mongolia, 1,288,000 square miles, with a population of 2,000,000; Tibet, 651,500 square miles, with a population estimated at 6,000,000; Djungaria, 147,950 square miles, with 600,000 inhabitants; and Eastern Turkistan, 431,800 square miles, with 580,000 inhabitants. The number of foreigners residing at the treaty ports in the beginning of 1888 was 7,905, of whom 3,604 were British, 855 American, 651 Japanese, 597 German, 515 French, and 475 Spanish. About one half of the foreigners reside in Shanghai. The Roman Catholic Church counted in 1881 about 1,094,000 members. There were 41 bishops, 664 European priests, and 559 native priests. The number of

Protestant Christians increased from 19,660 in 1881 to 33,750 in 1887.

China Proper is divided into eighteen provinces, while Manchuria, from a comparatively recent date, has ranked as the nineteenth, and, as the result of the French war, the island of Formosa has lately been endowed with a separate administration. The provincial administration is as carefully organized as the central. As members of the official hierarchy, the rulers of the provinces are subject to transfer, removal, or disgrace, but the Government is decentralized to such an extent that there is almost no supervision or control over their executive acts. The provinces of Pechili and Szechuen are each administered by a Tsungtuh or Chetai, called in English a viceroy. Other viceroyalties are composed of groups of two or more provinces, Liang-Kwang, or the two Kwangs (Kwantung and Kwangsi), forming one; Liang-Kiang, or the two Kiangs (Kiangsi and Kiangsu, with Anhwei), another; Min-Cheh (Chekiang and Tuhkien), a third; Yunnan, including Kweichow, a fourth; Houkwang (Hupeh and Hunan), a fifth; and last, Kansuh and Shensi. There are twelve Futais, or governors, in charge of single provinces under the Tunghus, and four Futais, who administer independently the provinces of Shansi, Honan, Shantung, and the island of Formosa. Manchuria was converted into a viceroyalty in the reign of the late Emperor Tungche, but the military administration of the Manchus is still essentially in force.

Civil-Service Examinations.—There are 20,000 officials in the various grades of the civil service at Peking, about one fourth being Manchus and the others Chinese. They are actively employed and subject to close supervision, incurring for the smallest mistake the loss of steps in the order of seniority, affecting their rank and pay. The salaried offices in the provincial administrations do not exceed 2,000, but the yamens are filled with unpaid subordinates and hangers-on who have passed the examinations qualifying them as candidates for Government office, and who, while waiting the chance of an appointment which falls to but few, obtain a livelihood from bribes and blackmail. Although admission to the public service has been surrounded with every conceivable difficulty, such is the desire for rank and office that hundreds devote their lives to the vain pursuit to every one who succeeds in entering the regular service. A preliminary examination is held once a year in every prefecture. Those who are successful—and they are less than 1 per cent. of the applicants—must go through a severer examination before obtaining the degree of *sintsai*. This entitles them to come forward at the triennial examination held at every provincial capital for the degree of *ku jin*, which confers a claim to office that is still only a chance, for the successful candidates are many more than the vacancies. Many men, trying again and again, reach old age before they win the second degree, and many lives are passed in futile studies. About 90,000 candidates present themselves every three years, and an average number of 1,300 are successful. There is opportunity for favoritism and corruption in the examinations, it is said, and certainly in the bestowal of offices on the suc-

cessful candidates. Those *ku jin* who obtain no appointments may compete for the higher degree of *tsin sze* every three years at Peking, but if they fall below a certain standard, they lose the degree that they have, and may be forbidden to present themselves again. The highest literary degree is that of *hanlin*, to be won by a fourth examination, which, if successfully withstood, confers membership in the Imperial Academy, accompanied with a fixed salary. The doctors of the Hanlin Yuen enjoy the highest consideration and respect, but they must not allow their learning to become rusty, otherwise they fail in the periodical examinations, and are dropped from the rolls of the college.

Finances.—The revenues of the Imperial Government are only known by estimates. The ordinary receipts are estimated to amount to 71,900,000 haikwan taels, of which 20,000,000 taels represent the land tax, payable in specie; 2,800,000 taels, the rice tribute; 9,600,000 taels, salt duties; 20,500,000 taels, the maritime customs; 6,000,000 taels, the native customs; 11,000,000 taels, transit duties; and 2,000,000 taels, license taxes. The receipts of the custom-house alone are published. The collection of duties is in charge of an Englishman, who has European and American as well as Chinese assistants. The customs receipts in 1887 amounted to 20,541,399 haikwan taels, of which 4,645,842 taels represent the prepaid *likin* tax on opium. The Chinese Government since 1874 has raised various loans in the European money markets, amounting altogether to about \$25,000,000. The last was a loan of \$1,250,000 placed in Germany in February, 1887.

The Army.—The military forces of the Emperor number nearly 1,000,000 men; but, to a large extent, the arms are antiquated, and the troops are untrained in the methods of modern warfare, except two new corps that are of great importance for the defense of China against foreign attacks, viz., Li-Hung-Chang's trained regiments and the garrison of Manchuria. The regular imperial forces are still divided under the system adopted at the time of the Manchu conquest in the middle of the seventeenth century into three separate bodies, composed of the races to which they belong. The Manchus, numbering 678 companies of 100 men, and the Mongols, who furnish 80,000 fighting men, form together what is called the Tartar or Banner army. The Chinese or Green Flag army numbers between 600,000 and 700,000 men; but no attempt has been made to organize this force for modern war. Nor is the *esprit de corps* strong or elevated, owing to the inferior position occupied by the military in the Chinese community, which prides itself on literary education and civil pursuits. Yet the most efficient corps now existing in China, Li-Hung-Chang's model troops, organized after the European fashion, and instructed and disciplined for twenty years by foreign officers, among whom Germans predominate, is mainly recruited from the Chinese population. This body, known as the Black Flag Army, consists of about 50,000 men, and is intrusted with the special duty of garrisoning Port Arthur, the forts on the Taku and Peiho, and Tientsin, and of defending the capital and the metropolitan province of Pechili from for-

eign invasion. It is pronounced by most critics to be a fairly efficient body of troops for the work that it has to perform—that is, for defending fortifications. The garrison of Peking is composed of the choicest material to be found in the Chinese Empire, the *élite* of the Manchu and Mongol Banners, men selected for high stature and splendid physique, who are inspired by the martial traditions and pride of their race, and developed athletically by the old military system of hardening and exercise. This force is always under the command of a Manchu of high rank, having stood recently under the personal orders of Prince Shun himself. Its organization, however, is defective and out of date, and little attempt has been made to fit it in armament and training to cope with European troops. Wang-chi-chang, a high official who has recently been appointed chief-justice of the Canton province, in a recent memorial, suggested radical changes in the system of military exercises and competitive examinations. Instead of practicing archery and lifting heavy weights, he recommends that the competitors should be required to shoot at a target with a rifle, and that the highest honor should be awarded to the best marksman, who should be appointed to teach rifle practice to the people of his town and neighborhood, in order that all the people should eventually acquire skill in the use of firearms. He proposes that promotion in the army should be made to depend on superior accuracy in rifle-shooting. In the same memorial he suggests that the Chinese should be encouraged to build and to own steamships that would be available for the Government in time of war, besides increasing the national wealth; that the Government should purchase machinery for forging iron and manufacturing cannon, in order to be independent of foreign supplies that may be cut off by blockade and neutrality laws; and, as a preventive of war, that machinery for manufacturing cotton cloth on a scale sufficient to supply the whole empire should also be purchased, for having lost their business in cottons foreigners will of their own accord return to their homes. In Manchuria and Central Asia the Government is rapidly developing a large force capable of withstanding an invasion of the western frontiers. A few years ago the garrison of Manchuria consisted of local levies armed with bows and spears. The troops are still drafted from the Tartar tribes, who surpass in bodily vigor and native courage the well-disciplined garrison of the Pechili province. They are being armed and organized in the modern way under instructors from Li-Hung-Chang's army. There are now in Manchuria alone 200,000 Bannermen, and of these one third are armed with Winchester and other rifles, and are trained in garrison duty at Moukden, Kirin, and the posts on the Ussuri river.

Commerce.—The net imports in 1887 amounted to 102,263,669 haikwan taels (of the average value of \$1.17), and the total net exports to 85,860,208 taels. The imports from Hong-Kong were of the value of 57,761,039 taels; from Great Britain, 25,666,477 taels; from Japan, 5,565,305 taels; from India, 5,537,375 taels; from the United States, 3,398,390 taels; from the Continent of Europe (exclusive of Russia),

2,587,548 taels. The value of the exports to Hong-Kong was 31,393,189 taels; to Great Britain, 16,482,809 taels; to continental Europe, 11,545,406 taels; to the United States, 8,915,920 taels; to Russia in Europe and in Asia, 7,651,353 taels; to Japan, 2,113,137 taels. Hong-Kong is a center for the import trade in opium, salt, cotton goods, and other articles, and for the export trade in tea and silk. About one half of the trade of which this port is the intermediary is with Great Britain, and the rest is divided between India, the United States, Australia, Germany, and minor countries. The imports of cotton goods into China in 1887 were valued at 37,047,931 haikwan taels; opium, 27,926,865 taels; metals, 5,797,367 taels; woollens, 5,424,561 taels. The exports of silk, raw and manufactured, had a total value of 31,690,214 taels; tea, 30,041,100 taels; straw braid, 3,738,310 taels; sugar, 1,869,583 taels; clothing, 1,306,820 taels; paper, 1,216,563 taels; chinaware, 1,113,019 taels. The quantity of tea exported was 2,096,097 piculs, of 133½ pounds, of which 793,747 piculs went to Great Britain, 607,376 piculs to Russia, 274,112 piculs to the United States, 172,306 piculs to Hong-Kong, and 147,543 piculs to Australia. The raw silk export has varied in ten years from 51,772 piculs in 1885 to 80,170 piculs in 1880, the average quantity being about 65,000 piculs. The trade in wild silk has sprung up within a few years, the export increasing from 4,289 piculs in 1879 to 13,868 piculs in 1886, and from that to about 73,000 piculs in 1888. The export of silk waste has increased fourfold since 1879, amounting to 59,125 piculs in 1887 and 52,757 piculs in 1888. The export of silk cocoons fluctuates according to conditions of silk culture in southern Europe. It was 4,318 piculs in 1879, 1,324 piculs in 1885, 11,092 piculs in 1887, and 8,981 piculs in 1888. The trade in silk piece-goods has risen steadily from 13,808 piculs in 1872 to 23,016 piculs in 1888. The raw cultivated silk is exported from Shanghai and Canton, which in the reverse order are also the sources of the silk manufactures. Wild silk and cocoons are shipped mainly from Newchang, Canton, and Chefoo. The total value of the imports for 1888 is reported by the Maritime Customs Office to amount to \$150,000,000, showing an improvement of 12 per cent. over the previous year, exclusive of the junk trade with Hong-Kong and Macao, which forms a part of the total for the first time. The trade of the treaty ports amounted to \$125,500,000. The total value of the exports by sea was \$112,000,000. Tea and silk account for more than two thirds of the total exports. The ocean tea trade has fallen off, owing to the competition of India and Ceylon, and in part to the growth of the overland exports to Asiatic Russia. The silk exports, on the other hand, have increased 50 per cent. since 1885. There is a growing export of raw cotton and of products destined for the consumption of Chinamen abroad. Cotton goods constitute 35 per cent. of the imports. The increased import of Indian opium accounts for two fifths of the improvement in the total value of imports. The next most important articles are rice, of the value of \$11,750,000; metals, \$8,500,000; woollens, \$6,000,000; fish, \$3,150,000; kerosene oil, \$2,650,000.

Navigation.—The number of vessels entered and cleared at the ports of China in 1887 was 28,381, of 22,199,661 tons. Of these 23,439, of 21,149,526 tons, were steam vessels. Of the total number 15,917, of 14,171,810 tons, were British; 8,298, of 5,670,123 tons, Chinese; 2,749, of 1,480,083 tons, German; 409, of 306,196 tons, Japanese; 255, of 66,539 tons, American; and 121, of 180,890 tons, French. There is a very large coasting trade in which foreign vessels as well as Chinese junks and steamers take part. The steamers belonging to the Chinese Navigation Company also engage in the foreign trade.

Railroads.—The introduction of railroads into China has encountered not only superstitious prejudices, but the powerful opposition of the classes engaged in the carrying trades. An experimental railway between Shanghai and Woosung that was opened in 1876 was purchased by the Government in the following year for the purpose of tearing it up. A railway for the conveyance of coal from the mines at Kaiping to the river Petang has been working for some years. It was continued in 1888 to Tientsin by way of Taku, making its total length 85 miles. The whole line was opened for traffic in October, 1888, after being inspected and approved by Li-Hung-Chang, Governor-General of Pechili. An imperial decree was issued ordering its extension from Tientsin to Tungchow, only twelve miles from Peking; but suddenly, on account of the strong objections of the conservative party at court, the project was dropped altogether for the time. It came under discussion again in 1889. But the Censors declared against the project. The destruction by fire of a very sacred temple, the Tien Tan, or Altar to Heaven, at Peking, in September, 1889, was attributed to the railroads by their superstitious opponents, some of whom, it is suspected, may have set the building on fire for the purpose of laying the blame on the foreign innovation. On August 27 an imperial decree was issued sanctioning a railroad from Peking to Hankow. In the edict the Emperor declares his opinion that to make a country powerful railroads are essential. Recognizing that the people will have at first doubts and suspicions, he orders the viceroys Li-Hung-Chang and Chang-Chitung, who are to build the line, and the governors of the provinces of Pechili, Ilupch, and Honan, through which it will pass, to issue proclamations exhorting and commanding the people to throw no impediments in the way, as it is the Emperor's desire that all should work together to make this great work a success. The line will have a length of nearly 800 miles, and is estimated to cost 16,000,000 taels. When Li-Hung-Chang's favorite project was defeated, owing chiefly, it is supposed, to the machinations of officials who derive illicit profits from the transport of tribute rice between Tientsin and Peking, the Emperor, induced probably by Prince Shun and the ex-Empress Regent, sent orders to high officials, among them Tseng, Viceroy of Nankin, Chang, Viceroy of Liang Kwang, and the Viceroy of Min-Cheh, to report on the construction of railroads in China. Strengthened in his purpose by their reports, he announced the new policy of railroad construction, and ordered this important trunk-line to Hankow to be built as soon as possible.

Telegraphs.—At the close of 1884 the Chinese telegraphs had a length of 3,089 miles, with 5,482 miles of wire. They have since been extended so as to connect all the principal cities near the coast and on the Yangtse-Kiang and carried into the interior to the provinces of Yunnan and Szechuen.

Famine.—In the autumn of 1888 and in 1889 Northern China was afflicted by the most widespread and disastrous famine that has occurred in a period of many years. The resources of the Government were already strained by the Yellow-river disaster, which deprived 1,500,000 persons of their livelihood, exclusive of the great number who lost their lives, and caused the expenditure of \$12,500,000 in the endeavor to repair the breach. Then came terrible inundations in Manchuria, which covered nearly the whole face of the country from Moukden to the sea and destroyed one of the sources of the food-supply. In the early summer of 1888 the rains on which the rice and wheat crops depend failed throughout a great part of the province of Kiangsu, one of the most densely populated in China, and in the Luchow, Chinchow, Gnauching, Yangchow, Kiangning, Chuchow, and Chinkiang districts in the Yangtse valley, where the people were obliged to kill their draught cattle for food. Upon that came an unprecedented downpour of rain in August, culminating in a deluge, which swept away the millet, bean, and sorghum crops, and in many villages melted out the foundations and brought down the houses. Manchuria was flooded. On Aug. 18 the river burst its banks near Moukden, and swept the fertile plain, carrying down whole villages. Thousands were drowned, and tens of thousands perished from cold and hunger, to which were added later the ravages of typhus fever. The parts of Honan that were still impoverished by the effects of the Yellow-river inundation of 1887 were again submerged. This river now overflowed also the prefectures of Fungyang, Yungchow, and Shuchow in the province of Anhui. The southern part of the great province of Shantung suffered even more severely, and a portion of Pechili was swept by floods.

In Shantung the people throughout a district covering 6,000 square miles, containing 1,500,000 inhabitants, were reduced to eating wild herbs and chaff and fresh blades of wheat in the autumn, and to selling their clothes and other belongings for a tenth of their value. About 2,000 persons left the stricken district daily, thronging the roads in all directions. In many valleys the mulberry trees were torn up by the roots and the soil was buried under a thick covering of sand and stones. The local authorities remitted taxes. Missionaries and wealthy Chinamen began to distribute relief in November and December. In Honan and the adjacent districts the energetic efforts of the Chinese Government to avert distress in 1888 were continued, and were extended to other places that were brought under the observation of the central authorities. The tribute grain was stopped on its way to Peking, and employed to relieve the sufferers. Large contributions were raised in London, and China merchants in New York added to the fund, which was expended through the instrumentality of missionary committees

and the Government authorities. The Chinese at home and those settled in all parts of the world gave liberal amounts. The sufferers numbered as many as 10,000,000 people. The worst of the distress and hunger ceased when the early crop of wheat was harvested about the first of June. In August, 1889, the Yellow river again broke its banks, submerging a large part of the province of Shantung. The recent floods have called the attention of the authorities to the subject of arboriculture. China has long been denuded of her forests, and in many parts is almost treeless except for the pines and cedars growing in the cemeteries. Li-Hung-Chang has been the first to move in the matter of reafforestation, issuing a proclamation requiring officials to plant trees in public places and urging the people to do so on private lands.

CITIES, AMERICAN, RECENT GROWTH OF. **Brunswick**, a city of Glynn County, Ga., on a small peninsula in the southern part of the State. Brunswick was founded by James Oglethorpe a century and a quarter ago, but had no commercial importance prior to 1871. Its growth has been mainly within the past four years, in which its population has nearly doubled, and the investment of Northern capital has led to important results. In 1880 it contained 2,900 inhabitants; in 1884, 5,000; in 1889, 10,000. It is surrounded on three sides by salt water, and protected from the ocean by out-lying islands, the largest of which is St. Simon's. Its harbor, with over thirty miles of water-front, is land-locked, and as early as 1837 attracted attention as a desirable location for a United States navy-yard. It was reported on by Commodores Claxton, Woolsey, and Shubrick as the best deep-water harbor for the purpose on the South Atlantic coast, and 1,100 acres on Blythe Island were purchased, under authority of an act of Congress, in 1857, at a cost of \$130,000. The appropriation for improving the harbor for 1889 was \$35,000, of which \$18,000 was expended in dredging and \$12,000 in jetty-works. The depth above the bar at high water is 22 feet clear, and the anchorage safe; and as fresh water is sixteen miles distant, unusually healthful conditions prevail. Port charges are low, and railroads deliver cotton direct to ships. The position of Brunswick, at the inward curve of the Atlantic shore, places the port nearer to inland centers than any other point on the coast. It is 500 miles in an air-line nearer San Francisco than is New York, and, in comparison with Savannah, is nearer Montgomery by 77 miles; 135 miles nearer Albany, Ga., by one railroad, and 85 by another, and 24 miles nearer Atlanta. Brunswick has \$197,000 invested in shipping. During the year ending Nov. 1, 1888, 312 vessels entered the port (total tonnage, 151,182), of which 117 were from foreign ports; and in the same period 292 were cleared (tonnage, 141,652), half of which were for foreign and half for domestic ports. In 1879 the city owned but a few pilot boats. There is a line of steamers to New York, and one to Savannah. In 1875 the total exports were about \$639,000. In 1888 they reached \$8,000,000. The chief export has always been lumber, from vast and easily accessible forests of yellow pine and hard woods. In 1888 there were shipped to foreign and coast-wise ports 88,273,847 feet. There has

been an increase of 50 per cent. in resin, and over 150 per cent. in spirits of turpentine exported since 1880, the shipments for 1888 being 149,549 barrels of the first, and 57,142 casks of the latter. The cotton trade has developed since 1885. Prior to that date, there were no dealers, but now docks are being built, an immense compress is under construction, and shipments are made not only to New York and other home ports, but direct to England and the Continent. The shipments for 1886-'87 were 35,000 bales; for 1887-'88, 85,000; and for 1888-'89, to June 13, 128,362. Brunswick is the Atlantic terminus of two lines of railroad, the East Tennessee, Virginia and Georgia and the Brunswick and Western, which renders not only the cotton belt of Georgia, Alabama, and Florida tributary, but also the coal and iron fields of northern Georgia, Alabama, and Tennessee. Other lines of railroad are contemplated, particularly the Brunswick, Waynesville and Cordelle. Brunswick is supplied with water by nine artesian wells, yielding from 20 to 575 gallons of water a minute; there are fine water works of the Worthington system, gas works, electric lights, and a line of street railway. It has all telegraph and telephone facilities, a volunteer fire department, and a graded system of public schools. The aggregate capital of two national banks is \$155,000. There are seven churches for whites, including a Jewish synagogue, and eight belonging to negroes. Prior to 1884 there was not a brick house in the town. In 1889 there were under construction a bank building costing \$27,000, an opera-house and stores costing \$25,000, a colored Odd Fellows' Hall, \$6,500, and a dozen stores ranging from \$5,000 to \$20,000. Manufacturing enterprises are in process of development. Rich deposits of phosphate have been discovered in close proximity to the city, and it is proposed to establish extensive works. There are numerous fine drives around Brunswick, and a handsome hotel has been erected for winter visitors. St. Simon's Island is a place of resort, and has a fine hotel. There are many points of historic interest. The last slave-ship, the "Wanderer," that crossed the ocean, landed at Brunswick harbor with 500 slaves on board. The Brunswick Land Company, chartered in 1888, has a capital of \$5,000,000. The death rate at Brunswick for 1888 was 8 per thousand.

Charleston, the capital of West Virginia, on the northern bank of Great Kanawha river, at the mouth of the Elk. The population in 1889 was about 8,000. Its history is long and interesting. Hither, in the days when pioneering from Virginia and Pennsylvania began, just before the Revolutionary War, came hunters and land-seekers, who had learned the way down the Kanawha. At this point were extensive bottom-lands and a great salt "lick," or spring, where game thronged. Washington pre-empted land near the present city site in 1774, and some of his kindred still reside in that neighborhood. In 1775 a man of means named Clendennin built a fort and house here (the latter is still occupied), and soon after the Revolution there was a rapid increase of population in the Kanawha valley. Daniel Boone was a resident for eleven years, at this period, opposite the salt lick. This saline spring had been utilized by the Indians and

earliest settlers for salt-making, and about 1784 a few kettles were set up in which to make salt for sale. The crystals were tinged red by iron, and the "strong, red salt of the Kanawha" soon acquired a wide reputation on account of its peculiar meat-preserving power. This led to the establishment of boiling-works on a large scale, and to experiments in boring for wells. Deep boring was then untried, and it was in the course of study and experiment, to which these salt-seekers were compelled, that the "slips" or "jars," the "seed-bag," and several other tools and devices, without which the vast industry of deep well-boring could never have been developed, were invented. A great number of wells were bored, and salt-making became an extensive industry, supporting a large population for several miles above Charleston, and giving employment to many flat-boatmen. In 1841 there was an important change in the conduct of the business. On Washington's land, eight miles above Charleston, a "burning spring," or exudation of inflammable gas, had long been a curiosity. A salt-well, bored near by, struck a reservoir of this gas, which drove the water out of the well in an immense geyser. After some trouble, this gas and water were led to a furnace a mile and a half distant, and separated, the gas being fed into the furnace and the water to the kettles. This was the first utilization of natural gas for fuel in America; and the plan was adopted and improved upon in several other furnaces, many wells being subsequently put down to strike the reservoir. Exposures of bituminous coal had been observed by the earliest explorers, but it was not until 1834, when charcoal began to be scarce and costly, that it was used in the salt-furnaces as fuel. Grates having been adapted to it, its use became general, and coal-mining on the Kanawha began. By this time, too, steam-boats were ascending the river; but navigation to Kanawha Falls, one hundred miles from the mouth, was uncertain, and the subject of an improvement of the river was much discussed. The French Government proposed to build a magnificent system of canal-locks and tunnels over the Alleghanies, to connect the navigable waters of the Kanawha with those of the James, and thus secure cheap coal for Europe, and its plans would probably have been begun had not the civil war interfered. Charleston now had about 1,500 population, including many rich families of salt-makers and slave-owning farmers, who held the rich bottom-lands along the Kanawha and Elk rivers. These were generally in sympathy with the secessionists of the coast, but the body of the people were Union in sentiment. The salt-making continued profitably during the war; but afterward, deprived of slave labor, and unable otherwise to compete with the new field of production opened in Michigan, it steadily declined. Now all the old furnaces are in ruins, except one small one. Charleston has prospered, however, by the development of other resources. It is the most important commercial point in the large area between the mountains and the Ohio river south of Wheeling, and enjoys the exclusive trade of more than twenty counties. About fifty commercial travelers "drum up" trade for its wholesale and jobbing houses, and extend

their business into Kentucky and Ohio. The annual wholesale trade amounts to about \$2,500,000. This has grown to its present proportions mainly within the past fifteen years, since the opening of the coal mines, which are now worked in great numbers, from Charleston to about sixty miles up the Kanawha-New valley, and which, with their coke-ovens and attendant industries, sustain 50,000 people. All of these derive their supplies mainly from Charleston, and many of the managers dwell there, while her citizens have large investments in the mines. The State contains a vast area of almost untouched forest, and enormous quantities of logs are sent down the Elk and Kanawha rivers—an industry of great value to the city. Finally, there is every prospect of recovering the flow of natural gas, which gradually ceased to come from the old salt-wells in serviceable quantities several years ago, through the choking (it is supposed) of the uncased wells. One excellent gas well has been struck. If these experiments are successful salt-making will be resumed, great iron-making establishments can be set up, and general manufacturing entered upon under very advantageous circumstances. Petroleum is known to exist, and experimental boring in the neighborhood is being done. The Kanawha is in course of improvement by the Government, which has already expended \$7,500,000 upon permanent works, mainly after the French system of movable dams, which can be erected at low water and lowered out of the way of boats when the river is high enough to make them unnecessary. There is even better navigation than on the upper Ohio, and, as the locks are free, the rates of traffic are cheaper than on the Monongahela. Hence the coal and other products of the Kanawha valley can be sent to the Western cities cheaper than can those of the northern valleys of West Virginia. The Chesapeake and Ohio Railway runs along the whole length of the Kanawha valley, and affords a direct route from Charleston to the Atlantic coast and westward to Cincinnati. The Kanawha and Ohio Railroad now runs from Charleston to the Ohio river, and connects with the Ohio railway system. This road is to be continued eastward and northward into the lumber regions, to connect, up the Gauley valley, with the West Virginia Central Railroad; while a road down the Elk is intended to connect Charleston with the great grazing and lumbering interior north of her, and with the Baltimore and Ohio Railway. Charleston is beautifully located and well built up. The Capitol is a handsome building, costing \$350,000, which occupies a pleasant park. The financial condition of the town and its surrounding country is good.

Charlottetown, capital of the province of Prince Edward Island, at the confluence of three rivers—Elliott, York, and Hillsborough—on a fine harbor, in latitude 46° 13' 55" north, and longitude 63° 7' 23" west, about fifty miles from Pictou, Nova Scotia. The population in 1881 was 11,485; in 1889 it was estimated at 14,000. The streets are broad and run at right angles. There are four spacious public squares and a fine park. Near the center of the city, surrounded by the well-kept gardens of Queen's Square, stand the imposing Government buildings. The

Provincial Building, erected in 1843, contains the parliamentary rooms and library, the provincial museum, and the offices of the local government. The court-house, built in 1876, contains the apartments of the Supreme Court, the probate courts, and the registry offices. The Dominion Building, completed in 1887, contains the customs-office, the post-office, and the Dominion Savings Bank; adjacent to these stands the public market. A new city hall was completed in 1888. An asylum for the insane and two well-equipped hospitals are here. The Young Men's Christian Association has a commodious and well-appointed building near Queen's Square. The city is lighted by electricity, and has an excellent system of water supply, costing \$177,000, and an efficient fire department with apparatus costing \$26,000. The assessed valuation of the city on Dec. 31, 1889, was \$2,620,000, and the exempted property amounts to \$1,561,444.51. The city debt is \$289,700, including the cost of water-works, \$177,000; and the assets are valued at \$306,700. The educational institutions are the Prince of Wales College and Normal School, 3 city public schools, having 35 teachers and an average daily attendance of 900, St. Peter's Church schools (Anglican), a business college, 2 convent schools, and, in the suburbs, St. Dunstan's Roman Catholic College. Charlottetown is the seat of a Roman Catholic bishop. There are 9 churches—1 Roman Catholic, 2 Anglican, 2 Presbyterian, 2 Methodist, 1 Baptist, and 1 Christian; their property has a total valuation of \$188,000. There are 2 daily and 5 weekly newspapers, 7 hotels, and 4 banks, including the Dominion Savings Bank, with deposits amounting to nearly \$3,000,000. Charlottetown is headquarters for the Prince Edward Island Railroad, and is connected by telephone and telegraph with all parts of the island. It has steamship communication daily with Pictou, on the mainland, and weekly with Montreal, Halifax, and Boston. For the fiscal year ending June 30, 1889, there were entered, from foreign ports, 371 vessels, having 59,852 tonnage, and 17,726 tons of cargo, and 3,096 coastwise vessels, tonnage 420,449. Of the vessels that cleared, 426 were from foreign ports, tonnage 70,049, with 24,289 tons of cargo. There were 3,072 coastwise vessels, tonnage 415,094. The customs report shows imports amounting to \$565,717; duty, \$166,858.65; exports, \$709,139. These figures represent only about 40 per cent. of the actual imports and 50 per cent. of actual exports, as the large inter-provincial trade is not reported. As a summer resort Charlottetown is justly popular.

Cleveland, a city and the county seat of Bradley County, Tenn., on the East Tennessee, Virginia and Georgia Railroad, twenty-eight miles northeast of Chattanooga; population in 1889, about 4,000. It is in a gently rolling region, about 800 feet above sea-level, and the climate is both healthful and delightful in a high degree. This town is the business center of several counties, and also of the adjacent counties of Northern Georgia, reached by the branching railroad to Rome, Ga., and southward. Cleveland contains much wealth, as is attested by the unusual elegance of its public buildings and mansions, and by the well-regulated appearance

of its streets. Fine roads radiate from it through a beautiful country, and the accommodation for visitors is good. Cleveland, consequently, is coming to be a favorite resort for summer visitors from the far South, and for winter residents seeking to escape the chill of the North. Many Northern families are found among its permanent population. A railroad has recently been surveyed from Cleveland to Murphy, N. C., which will give direct communication with the Atlantic coast, and open the Ductown copper mines, forty miles distant, which are now reached only by a picturesque road along the gorges of the Oconee river. Two banks have a combined capital of \$300,000. There is a woolen-mill making 60,000 yards of jeans a month; stove-works turning out 10,500 stoves a year; a flouring mill equal to 125 barrels a day; large fire-brick and terracotta works; a chair factory and several wood-working establishments; and two large tanneries. A woodenware factory to employ 300 to 500 hands is being established. Eleven churches have buildings. The public schools have been largely increased and stimulated within the past two years, and are now in superior condition. Besides them, two institutions for the education of young ladies are flourishing, one having one hundred pupils. There is a fine opera house, and the town is supplied with gas, street cars, and telephones, and water-works are about to be introduced. The valuation of city property in 1888 was \$1,250,000.

Columbus, a city of Muscogee County, Ga., at the head of navigation on the Chattahoochee river, where it becomes the boundary line of the State, 100 miles from Macon, 115 from Atlanta, and 250 from the Atlantic coast. The population in 1887 was 27,469. Columbus is surrounded by a tributary territory of the richest mineral, timber, and agricultural lands. An exposition was held here in the autumn of 1889, to exhibit the products and resources of the Chattahoochee valley. Cotton, grain, and fine fruits are raised. An acre of ground will produce 1,000 of the famous Georgia watermelons. Truck-farming is profitable. Large quantities of building stone exist. The increase of taxable property in Columbus in 1887 was \$1,104,327. The transportation facilities include four lines of steamers in regular service on the Chattahoochee river to the Gulf of Mexico, and six complete railroads. Two others are building. A dummy line through the city and suburbs connects with all roads entering the city. There is a fine general freight and passenger depot. For 45 miles above Columbus the Chattahoochee has a fall of 125 feet in two miles and a half, giving 1,000,000 horse-power at lowest water, and double that amount at average stage. The power within the city limits is 36,940 horse-power, of which about one tenth is utilized by three cotton mills, one of which, the Eagle and Phenix, is claimed to be the largest in the South. It has 48,000 spindles, 1,500 looms, a capital of \$1,250,000, and employs 1,800 operatives. The yearly product is between \$1,500,000 and \$1,750,000. Other mills are run by steam. The total of capital invested in 43 manufactories in Columbus in 1888, all of which were paying dividends, was \$5,564,109; 4,596 operatives were employed, with a monthly pay roll of \$95,317. The cotton receipts average 100,-

000 bales yearly, of which 30,000 are consumed in local mills. There are three large compresses for shipment direct to Europe. Columbus has also large iron-works, manufacturing, with other machinery, an absorption ice-machine; foundries; a bagging factory turning out 3,000 yards daily; a barrel factory; a flour mill, with capacity of 600 barrels and 2,000 bushels of meal; planing and oil mills; knitting works; a clothing factory; fertilizing, ice, and refrigerating companies; and other industries. There are 4 banks with an aggregate capital of \$1,600,000 and surplus of \$815,000. There are 2 daily and 2 weekly newspapers, gas and electric lights, a street railway, and water works that supply water by gravitation from mountains four miles west of the city. The fire department is supplied with an electric alarm. The bonded debt of the city is less than \$500,000, and taxation is 1 per cent. Public schools have been in existence seventeen years. A new public-school building for boys cost \$40,000. There are five private schools also, a female college, two orphan homes, a public library, and a prosperous Young Men's Christian Association. There are nine churches for whites, including a Jewish synagogue, and several for colored people. The opera house has a seating capacity of 1,300. The annual mean temperature is 65°. The city has never been quarantined against yellow fever.

Dalton, a city and the county seat of Whitfield County, Ga.; population, about 4,500. It is at the junction of the Western and Atlantic and the East Tennessee, Virginia and Georgia Railroads. It is doing a mercantile business of over \$1,250,000 annually, and has \$500,000 invested in prosperous factories, the largest of which are flour mills and lumber mills. The principal products of the country are cotton, corn, grains, forage plants, and fine fruits. Of cotton the annual receipts amount to about 16,000 bales, and the dealings in this make Dalton one of the leading cotton markets of the State. Churches and schools are numerous, and the latter are supplemented by a female college. Both county and city are thoroughly opposed to the liquor traffic. Prohibitory laws prevail and are sustained. No liquor is sold in the city. "Prohibition," writes a citizen, "has been proved to be a benefit to the county and city. More goods are sold now than ever before; the farming element is in a better condition, with more fine stock and good, substantial homes, and the latest agricultural implements are noticed in use since the change has taken place. Our county jail is almost deserted." Water works and electric lighting have lately been introduced, and a soldier's monument has just been unveiled in one of the parks. The streets are wide and well shaded.

Dayton, a city of Rhea County, east Tennessee, on the Cincinnati Southern Railroad; population in 1889, about 7,000. As the town lies at the foot of Walden Ridge, at a point where rich coal deposits crop out, close to Tennessee river, and is surrounded by rich, yet sparsely cultivated lands, excellent for farming and fruit-raising, it seems strange that it became noticeable only so late as 1880. About that time the Cincinnati Southern came through the village and connected it with Chattanooga, and the

Dayton Coal and Iron Company began a development of the mineral resources of the locality, which has not yet ceased. This company erected two large blast-furnaces, and now employs more than 1,000 men. The property valuation, excluding the coal company and the railroad, approaches \$350,000. A foundry, a broom factory, a medicine-making company, two roller-process flouring mills of large capacity, and several other manufacturing industries have arisen. A bank, an opera house, several churches, and the usual benevolent societies have been organized there. Nearly 100 business firms are represented in the mercantile list, and a large local supplying business is done. The situation of the town between the hills and the river is extremely pleasant; and so great a number of springs of both pure and mineralized water gush out of the rocks at the foot of Walden Ridge that wells are hardly a necessity.

Dover, a city and port of entry of Strafford County, N. H., on Cocheco river, a branch of the Piscataqua. The central part of the city is at the head of tide-water at Cocheco Falls, where are located the Cocheco Cotton Mills and Print Works. The population in January, 1890, was 17,000. It is 63 miles northeast of Boston, on the Boston and Maine Railroad, and is connected by rail also with Portsmouth, 10 miles distant, and by railroad north to the lake and mountain region, so that four railroads center here. Horse-car tracks are laid in the principal streets. The grammar and high schools rank the highest in the State; free text-books are furnished to all the pupils in the public schools. There are also a flourishing academy for private students, a large public library, and ten churches. The coasting trade is very large. Twelve first-class schooners are owned by the Dover Navigation Company, and these, with numerous others, bring immense quantities of coal and lumber here. The Cocheco Cotton Mills, the Cocheco Print Works, and the Sawyer Woolen Mills are the chief manufacturing establishments, but an extensive business is done in the manufacture of boots and shoes of the best grades. There are also extensive machine shops and foundries and a belt factory. There are five banks. Dover is the shire town of the county, and the oldest town in the State, having been settled in 1623. The water power is extensive and valuable, but in addition to that a large amount of coal is used in running the manufacturing establishments. Public water works have been established. It has a fine court-house and a new city hall, and is to have a Government building for the post-office, which now does more business than that of any city in the State except Manchester. There are 3 daily newspapers and 3 weekly. There are 5 cotton-mills, with 108,416 spindles and 2,492 looms, which manufacture 31,500,000 yards of cloth per annum, employing 900 women and girls and 300 men and boys. The print works were rebuilt and much enlarged during 1887, and printed 50,227,894 yards of prints in 1889; they employ 500 men and boys and 100 women and girls; these works are run wholly by steam, and use 7,000 tons of coal per annum. The Sawyer Woolen Mills have 40 sets of machinery, employ 500 hands, use 2,500,000 pounds

of wool per annum, and manufacture 1,500,000 yards of woollen goods of various kinds, but all of the best grades used in making suits for men and boys. The whole amount of capital invested in the various manufactures is about \$5,000,000.

Findlay, the county-seat of Hancock County, Ohio, in the northwestern part of the State. The population in 1885 was 4,879; in 1887 about 14,000; in February, 1889, 27,500. Natural gas has given rise to a rapid development of manufactures. Gas was known to exist in 1836. In December, 1885, the first well was sunk, and on June 1, 1889, there were 43 in operation, 30 belonging to the city, yielding 66,500,000 cubic feet a day, and 23 the property of private companies, yielding 148,500,000 cubic feet. The Karg well, averaging 12,000,000 a day, was the largest known in the world prior to the drilling of the Tippecanoe in November, 1888. The daily yield of this well, which is private property, is estimated at 31,000,000 feet. The gas field of Ohio is 36 miles long and 9 miles wide. Gas is found in the Trenton limestone at Findlay, at a depth of from 1,092 to 1,312 feet. The corporation limits of the city are four miles long and six miles wide, and gas can not be piped out of the city. Valuable gas lands outside are owned by lease, and held in reserve by the city against emergency, which, however, is not likely to arise, as there are no signs of weakening flow. There is a Board of Gas Trustees. The center of the oil field of Ohio lies in Hancock County also, west of Findlay. The production of the whole territory for 1888 was 30,000,000 barrels. The oil is refined at Findlay, and produces 60 per cent. of lubricating oil. The soil of Hancock County is rich; there are exhaustless beds of clay, suitable for common and pressed brick, and stone for building and for lime. Deposits of sand and gravel are abundant, and lumber is plentiful. Building is progressing rapidly. In the eighteen months to June, 1889, \$2,101,305 were expended upon residences and business blocks, and at that date over 800 dwelling-houses were building. There are 5 railroads operating through Findlay, and the New York, Chicago and St. Louis (Nickel Plate) touches the city on the north. There are 4 street railroads, with 19 miles of track. A Holly system of water-works is in operation, costing \$300,000, and a similar amount was expended upon a city gas-plant. There are electric lights also. Houses are supplied with gas for heating, cooking, and illuminating purposes at cost of piping merely, \$10 or \$15 yearly. There is a paid fire department. There are 4 banks and 3 daily and 7 weekly newspapers. The schools number 16; 56 teachers are employed, and the total cost of the buildings is \$150,000. Classical, scientific, and English courses are given by the high school. Findlay College, built by the Church of God, at a cost of \$150,000, is non-sectarian. Its enrollment is 250. There are 18 churches, and a fine Young Men's Christian Association hall. The court-house, recently built, cost \$305,000, and the new bridge across Blanchard river \$35,000. In 1887 Findlay had \$679,500 invested in manufactures, employing 941 men. On June 1, 1889, her manufacturing capital was \$10,932,000, and 6,694 hands were employed. Among the most notable of the new factories are 11 glass facto-

ries, with a capital of \$700,000, employing 1,700 men, with annual production of \$2,175,000. Four of these have doubled their capacity during the year. Two pressed-brick works have a capacity of 36,000,000 bricks per annum. Findlay has the only manufactory in the world of seamless steel tubes, with a capital of \$4,000,000, 3 large foundries and machine shops, 2 rolling mills in operation, and a third partially erected, with \$5,000,000 capital, and to employ 1,500 to 3,000 men. There are 2 chain factories, a pottery employing 300 men, a wire-nail works, an oil-refinery, railroad car and repair shops, a typewriter factory, with capacity of 1,500 machines per annum, extension-table works, a church-furniture factory 2 brass foundries, an excelsior factory, lime-kilns, 8 planing mills, an aluminium factory, electrical-supply works, edge-tool and drilling and mining-tool works, a tin and copper and a refrigerator factory, galvanized-iron-cornice works, a woolen and a linseed-oil mill, cooper shops, flouring mills, carriage and harness factories, stave and handle works, a rake factory, bottling works, cigar factories, and other industries.

Florence, a city, the county seat of Lauderdale County, Ala., in the northwestern part of the State, on a high plateau, overlooking Tennessee river, at the head of navigation. It is 150 feet above high water. Until 1887 it was a burgh of 1,500 inhabitants. In January, 1889, the population was 6,000; in October of the same year it was estimated at from 8,000 to 10,000. Bailey's and other medicinal springs in the vicinity, have given it reputation as a health resort. The death rate is less than 7 in 1,000. The climate is favorable, that part of Alabama being exempt from extremes of heat or cold. The highest temperature during 1888 was 95° 3'; the lowest during the winter 1888-'89, 18°. Florence has fine parks and drives, and wide, shaded streets, lighted by electricity, and paved with natural gravel. It has excellent drainage. The State Normal College, Florence Synodical Female College, and Mars Hill Academy are located here, with other public and private schools. A Baptist university is being built and will be liberally endowed. There are numerous churches regular services being held by the Methodist, Presbyterian, Episcopal, Catholic, and Christian denominations. Baptist and Cumberland Presbyterian churches, are also projected. Florence has a valuable electric plant; and Cox's, Sweetwater, and Cyprus creeks, furnish the water for its water works and various factories. The city has no debt. The rate of taxation in 1888 was \$1.50 on \$100. The State Legislature recently permitted an amendment to the charter of Florence, exempting new manufactories from city taxes for ten years. There are 32 manufactories in operation, including cotton-mills, an iron furnace, a manufactory of builders' hardware, a cotton cultivator company, wagon works, corn and flour mills, a shoe factory, stove foundry, spoke and handle factory, ice factory, woodenware factory, bagging factory, sash, door, and blind factory, and blast furnaces. The majority of these were established in Florence within the six months previous to October, 1889. The amount of capital invested during that period is computed at \$14,212,500. Her geographical po-

sition necessarily concentrates at Florence the bulk of the industries along the line of her great waterway. In addition to her water transportation for 15,000 miles, in the Ohio, Missouri, and Mississippi valleys, this city is a railway center for agricultural, mining, manufacturing, and timber interests, having the Louisville and Nashville, Memphis and Charleston, Florence Northern, and the Sheffield and Birmingham, and Tennessee River railways. Lauderdale County is in the cereal belt. Farming, stock raising, and manufacturing are extensively pursued. It has valuable timber, and just south of it are the Warrior coal-fields, while the pine forests of Georgia are within fifty miles of Florence. Immense beds of hematite iron ore lie twenty miles north. The important and costly engineering work, undertaken by the State with Government aid, to overcome the obstruction in the Tennessee river at Muscle Shoals, is practically completed. Locks have been tested, and an aqueduct upon stone abutments bridges the creek for steamboat passage over the shoals. The trough, 60 feet wide, by 1,500 feet in length, is to contain 5 feet of water, the same depth as the canal. This gives Florence direct communication with the steel-making ores of east Tennessee, and the vast coal-beds below Chattanooga.

Fort Worth, the county seat of Tarrant County, Tex., in the northern part of the State, on the south bank of Trinity river. The population is about 30,000. The city has an altitude of 825 feet, and 20 miles to the south stretches an unbroken prairie. It has 10 railroads, 6 of which are trunk lines. Two other lines are being built to the coal fields 45 miles westward, and to the iron region in Llano and Mason counties, to the southwest. A fine bed of hematite ore lies 3 miles south of the city, from which it is expected steel will be manufactured in a twelvemonth. There are 7 banks with aggregated capital of \$1,960,000, 40 miles of graded streets, 15 miles of street railway, 20 miles of water mains, and 13 of sewerage. The water works are of the Holly system. Artesian wells, 150 in number, also furnish water from a depth of from 150 to 300 feet. One hundred tons of ice are manufactured daily from artesian water. The churches number 15, and there is a fine system of public schools. Tarrant County produces not only cotton, corn, and wheat, but two annual crops of oats and three of hay. It is a fine fruit-growing region. The annual rainfall is 37 inches. The flouring mills of Fort Worth have an elevator storage of 1,000,000 bushels, and grind 1,000 barrels daily. In 1888, 60,000 bales of cotton were shipped from the city, and 80,000 head of cattle. A union stock-yards company has been formed, with capital of \$200,000. There is a Union Depot, and a Board of Trade building that cost \$110,000.

Fredericton, the capital of New Brunswick and of York County, in latitude 45° 55' north, longitude 46° 32' west, on the right bank of St. John river, 85 miles from its mouth as the stream runs, though only 65 by rail. The population in 1881 was 6,218; in 1889, estimated at 7,300. The city proper covers nearly a square mile, and is laid out with great regularity, the streets crossing each other at right angles. The public build-

ings include the Parliament and departmental buildings, the county court-house, the officers' quarters, stone barracks, the post-office and custom house, the provincial normal school, the city hall, Victoria Hospital, and Government House, the residence of the Lieutenant-Governor. The Parliament Building, erected in 1881 to replace a wooden one that was destroyed by fire, is a handsome structure of gray freestone with a beautiful Corinthian front. Adjoining this building is a fireproof structure containing the legislative library of 10,500 volumes. The departmental building, which has just been finished, is of purplish gray stone found in the neighborhood. The barrack buildings were erected by the Imperial Government about the beginning of the century, and the imperial troops were stationed here till about the time of the confederation of the provinces. The barracks are now occupied by an infantry school. The corps consists of a permanent force of about one hundred young men, with one or two veterans of the imperial service. The normal-school building, erected in 1876, is of brick trimmed with gray freestone, and is surrounded with grounds tastefully laid out. The Victoria Hospital, erected in 1887, to commemorate the Queen's Jubilee, is of wood. This institution will be associated with the name of Lady Tilley, to whose efforts it owes its existence. The Government House, which has been used as the residence of the Lieutenant-Governor for over sixty years, is a large, old-fashioned, but very commodious stone building, in beautiful grounds. The Fredericton branch of the New Brunswick Railway connects here with St. John and Maine. The Gibson branch connects with Woodstock, 66 miles from Fredericton, and with Quebec by the Temisconata and Riviere du Loup Railway. The Northern and Western Railway, with its terminus at Chatham, connect with points on the north shore and with Quebec by the International Railway. The Fredericton Railway steel bridge, completed last year, connects the railways on the opposite banks of the river. The Fredericton Boom Company has its headquarters here, and employs hundreds of men to collect and raft all the logs that are cut on the river and its tributaries. The other industries are few. There are 1 large foundry, 5 carriage and sleigh factories, 2 sash-and-door factories, several tanneries, 1 broom factory, 1 canning establishment, and 3 saw mills. The Church of England has a fine cathedral of Gothic architecture, besides a parish church. The Roman Catholic church is a large wooden structure. Adjoining it are two brick buildings, one being a convent and the other the residence of the priests. St. Paul's Presbyterian Church is of limestone, recently erected at a cost of \$25,000. The Baptist church is of purplish gray sandstone, erected in 1882. There are several other churches, and the Salvation Army has erected a brick building at a cost of about \$4,000. The university was established by provincial charter in 1800, afterward founded and incorporated by royal charter, and reorganized by an amended charter in 1860. The faculty consists of six professors, including the president. The endowment yields annually \$8,800. The provincial normal school, established in 1846, has six instructors, includ-

ing the principal, and an attendance of about two hundred. The collegiate school is under the joint control of the university senate and the city school board. There are seven other schools. All except the normal department are supported by a direct tax amounting to \$14,000 annually and by grants to the teachers from the provincial treasury. There are 5 newspapers, including 1 daily, and 4 banks. The ferry boats that formerly plied between the city and Gibson and St. Mary's on the opposite side have given way to a substantial bridge that cost about \$70,000. There is a fine water supply by direct pumping from the river. The streets and many houses are lighted with electricity, though gas is still largely used. The use of the telephone is general. The taxable valuation of real estate (not including provincial, municipal, church, and college property, which are exempt) is \$1,754,330; personal estate, \$1,161,075. The value of the imports for the fiscal year ended June 30, 1889, was \$575,795, and the duty thereon \$69,416. The value of the exports, which consist chiefly of lumber, shingles, laths, bark, and railroad ties, was \$132,410.

Fresno, the county seat of Fresno County, Cal., the exact geographical center of the State, on the main line of the Southern Pacific Railroad, 207 miles from San Francisco. The population is nearly 10,000. The county lies in the valley of San Joaquin river, and contains 2,000,000 acres of land susceptible of irrigation, which was introduced about twenty years ago. From a stock-raising, it became a grain section, and now is especially famous for its fruit. In 1887 there were 1,050 miles of trunk canals in operation, built at a cost of \$2,000,000, and capable of watering 720,000 acres. There are 1,000,000 acres of heavily timbered land in Fresno County, and two groves of the big trees. Thirteen saw-mills are in operation, and 15,000,000 feet of lumber were sold from yards in Fresno in 1888. Mining for coal and minerals is also carried on, though not to a large extent. In 1888, 2,541,115 pounds of dried fruit were exported and 1,455,530 of green. Oranges, figs, and olives grow readily, as well as the more hardy fruits. Raisin culture was introduced about ten years since. The total raisin crop of the State for 1888 was 18,300,000 pounds; that of Fresno County, 10,686,270; and that of Fresno proper, 8,300,000. In 1887, 16,786 acres were planted in vineyards, and the annual product of wine is 2,500,000 gallons. A board of trade was established two years ago. The city is built principally of brick, and has fine residences and business blocks, electric lights, telephones, water works, a fire department, and a horse railroad. A sewerage system is under construction. There are 3 projected railroads, 4 banks, 2 fine hotels, 9 churches, and a high school. There are 2 daily and 3 weekly newspapers. In addition to the planing mills and lumber yards, there are a machine shop and foundry, agricultural implement and cornice works, marble and stone cutting yards, warehouses, the largest Malaga fruit-packing houses in the State, and a flouring mill that grinds 200 barrels daily. The court-house occupies a city block, and cost \$60,000. There is a Masonic temple, a club house, and fair grounds. Upon

the latter \$30,000 were spent in the past year. The increase of total value of all city property in 1888 over 1887 was \$3,427,020—141 per cent.

Gadsden, the county seat of Etowah County, Ala.; population in 1889, about 6,000. It stands on the western bank of the Coosa, at the southern terminus of that range of mountains which, beginning in Lookout, at Chattanooga, runs unbrokenly southwestward for 90 miles, and for all that distance is impassable to wheeled vehicles. This range abounds in hematite iron ores, both red and brown; limestone for flux is near at hand, and coal and coke are only a few miles away from Gadsden. The transportation facilities are already abundant, and additions are in prospect. The "Queen and Crescent" through route passes (at Atalla) within five miles of Gadsden, with which it is connected by a branch. The Rome and Decatur Railroad gives connection with the system of the East Tennessee, Virginia and Georgia, while the Anniston and Cincinnati Railroad connects at Anniston, 28 miles southwest, with the extensive systems of the Georgia Pacific and the Richmond and Danville Railways. Steamers on the Coosa between Gadsden and Rome, carrying the United States mail to twenty-seven post-offices, make schedule time every day in the year. These lines give Gadsden transportation facilities and freight rates that put it upon an equality with other manufacturing points in the South. In the mountains east of Gadsden, immediately on the line of the Anniston and Cincinnati Railroad and in close proximity to Coosa river, are vast beds of brown ores. The company that owned the principal mineral properties and the town site built a furnace, which was "blown in" Oct. 14, 1888. It has a capacity of 125 tons of iron each 24 hours, and furnishes employment, at mines and furnace together, for 300 men. A second furnace, lately completed, turns out 40 tons of charcoal iron a day. Its owners operate a short railroad and steamboat and barge line, and burn their own charcoal. Their ore is mined within half a mile of the furnace, and is worked direct from the mine. The Elliot Car Works have a capacity of 12 cars a day and employ from 250 to 300 men. This company is part "owner of the Round Mountain ore bed, which is widely noted as giving an iron of peculiar excellence for car-wheels. There are also several smaller factories, foundries, lumber and wood-working mills, flouring mills, and brick-yards. The river and railroad centering here pass through good agricultural lands, and two cotton warehouses, with a capacity of 15,000 bales, have been provided. The site of the business portion is level, and the town is handsomely built up, everything being modern, new, and fresh. One of the finest hotels in the South has been erected by the Improvement Company. A motor line runs to the suburbs and to the Nochalula Falls, which are formed by a mountain torrent leaping 94 feet from the top of Lookout Mountain into an alpine gorge about 200 feet wide, with perpendicular walls 60 to 100 feet high for nearly a mile below the falls. The recess behind this cataract would shelter 5,000 persons. The streets and many buildings are lighted by electricity. There are water works and an ice factory. A fine park and drive have been made around Lake George, which affords opportunity

for boating, and chalybeate springs form a further attraction.

Halifax, the capital and metropolis of Nova Scotia; population in 1881, 36,096; in 1889, estimated at 41,000. Halifax was settled in 1749 and incorporated in 1841. It is about midway of the Atlantic coast of the province, on Chebucto Bay, one of the finest harbors on the continent, is built on a peninsula $4\frac{1}{2}$ miles long and $\frac{1}{2}$ to $2\frac{1}{2}$ miles wide, and covers about 8 square miles. Its streets run at right angles and are generally well shaded. Its common contains 235 acres. Point Pleasant Park contains 186 acres, and has beautiful drives and scenery. The public gardens contain $17\frac{1}{2}$ acres, recently improved at a cost of more than \$60,000. Halifax is the winter port of Canada for English mails and shipping, and an important British military and naval station. The extensive properties of the War Department and the presence of war ships in the harbor and of imperial troops throughout the city are necessarily a prominent feature, and mark this as the most English city in America. The citadel, an immense fortification two hundred and fifty-six feet above sea-level, commands the city and the harbor. York Redoubt across the Northwest Arm, George's island within and McNab's island at the entrance of the harbor, Fort Clarence, on Dartmouth side, and Point Pleasant, are all strongly fortified. Other properties of the War Department throughout the city are estimated to be worth \$1,500,000. Halifax is the headquarters of the imperial forces in British North America, and the principal station of the North American and West India squadron of the royal navy. About 2,500 troops are generally stationed here. It is also the seat of a bishop of the Church of England, and of a Roman Catholic archbishop. There are 38 churches—12 Anglican, 4 Roman Catholic, 8 Presbyterian, 7 Methodist, 6 Baptist, and 1 Universalist. The principal educational institutions are Dalhousie College and University, which has 9 professors and 3 instructors in its Arts faculty, and 2 professors and 5 lecturers in its Law faculty; Halifax Medical College, with 11 professors, 4 lecturers, and 1 extra mural lecturer; the Presbyterian Theological Hall, with 3 professors; Halifax Ladies' College and Conservatory of Music, with 12 teachers; Academy of the Sacred Heart, with 14 teachers; and Halifax Business College. There are also numerous private schools. The city schools are the Halifax County and City Academy, which has 5 teachers, and 20 common schools, with 114 teachers. The total number of pupils attending city schools is somewhat over 7,000. The compulsory education law is to be enforced hereafter, and the school attendance will probably be increased. Five newspapers are published daily, 3 tri-weekly, and 7 weekly; besides 1 bi-monthly and 1 monthly periodical. There are 8 banks, 15 hotels, 3 public libraries, several reading-rooms, and numerous charitable institutions, among which are the Mount Hope Asylum for the Insane (Dartmouth), the county poor-house, Halifax School for the Blind, Halifax Deaf and Dumb Institution, Halifax Dispensary, the Protestant Industrial School, Home for the Aged, House of Industry for girls, Women's Home, Orphan's Home, Infant's Home,

and Victoria Hospital. The last-named building is being enlarged at a cost of \$55,000. The Young Men's Christian Association owns a spacious building valued at \$40,000. Among the more important public buildings are the Dominion Building, which cost \$120,000; the new city hall, \$130,000; the Provincial Building, recently modernized; the Government House; and the court-house. A new granite dry-dock

erty in the city is \$21,562,603; of exempted property, Nov. 1, 1889, as follows: Churches, \$611,000; charitable, \$183,500; industrial, \$600,000; educational, \$202,000; to which should be added the cost of city school buildings, \$193,000; miscellaneous, \$805,000; much city, Government, and imperial property remains unestimated. The city debt, Nov. 1, 1889, was \$1,950,000 (including the cost of water-supply, \$802,000,



DALHOUSIE COLLEGE, HALIFAX.

has been built at a cost of \$1,000,000; a new Dalhousie College building, \$80,000; and the Church of England Institute, \$16,000; and a new city school building is being erected at a cost of \$16,000. Electricity is used for lighting, and will soon be adopted as the motive power on the seven miles of street railway. There were reported at the Immigration Office 15,053 immigrants for 1888, and 10,937 for the first ten months of 1889. The imports for the year ending June 30, 1889, amounted to \$6,940,342, of which \$2,216,179 worth were entered free. The value of home consumption of imports was \$6,521,848; the total duties collected, \$1,836,089.81. During the same year vessels entered this port as follows: From foreign ports, 1,049, having 618,446 tonnage, 22,671 men, and 226,451 tons of cargo; and 3,404 coastwise vessels, having 284,475 tonnage and 20,377 men. Of vessels that cleared, 1,414 were for foreign ports, having 603,105 tonnage, 26,774 men, and 168,608 tons of cargo; 3,095 were coastwise vessels, having 317,396 tonnage and 3,095 men; and 481 were fishing vessels, having 36,320 tonnage and 6,630 men. The assessed valuation of taxable prop-

erty and of school buildings \$193,000). Halifax is the chief eastern terminus of Canadian railways, has regular steamship communication with both sides of the Atlantic, and is an important cable, telephone, and telegraph station. Its manufactures, except of sugar, rope, cotton, and skates, though numerous, are not extensive. As a watering place, it offers a salubrious air, fine scenery, bathing, and historic associations.

Helena, the capital of Montana, and county seat of Lewis and Clarke County, the commercial, financial, and railroad center of the State, situated at the eastern foot of the Rocky mountains, 12 miles from Missouri river. The population, by census of 1880, was 3,600; in 1889 it was about 20,000. Originally a town site of 160 acres, Helena was founded in 1864 by miners in "Last Chance Gulch," on both sides of which the city is built, and from which \$20,000,000 of gold has been taken. The city was three times destroyed by fire (in 1867, 1872, and 1874) and was incorporated in 1881, with an area of 9 square miles. The Northern Pacific Railroad reached Helena in 1883, and the Manitoba and Montana Central was completed in 1887, entering the city

by way of the Great Falls of the Missouri and the cañon of the Prickly Pear. A short rail extension to Butte City connects with the Union Pacific. There are 11 local roads. Twenty-two passenger trains arrive and leave daily. There are 4 telegraph and 2 express companies. Telephone communication is maintained with the surrounding mining districts, within a radius of 50 miles, as well as with Deer Lodge and Butte City. The total mineral production of Montana in 1888 was \$41,000,000, of which \$24,666,000 was gold and silver, and in 1887 the production of the Territory in these metals was greater than that of either of the three leading States. The out-put of the United States Assay Office at Helena for the fiscal year 1888 was \$1,344,094.59, of which \$1,316,608 was gold. The largest gold bar ever made, weighing 7,000 ounces and worth \$101,385.50, was cast by that office in 1889. In East Helena, a suburb, there is a \$1,000,000 smelter, turning out daily 60 tons of silver bullion, and there are two reduction works. The assessed valuation of Helena property is \$9,000,000, and that of the county \$4,000,000. In 1888 \$3,055,000 were expended in buildings and improvements. The capital, surplus, and undivided profits of five banks were \$8,300,000. There are thirty miles of graded streets and avenues, with board sidewalks, one street railway, and one steam-motor line. Water is supplied by mountain streams, and the water works of three companies aggregate in cost \$600,000. Gas and electricity are employed in lighting. The slope of the city from south to north affords excellent drainage, and \$280,000 have been appropriated for a general sewerage system. A fire department, owning three engines, has a salvage corps, watch-tower with alarm bell, and electric signals. The post-office receipts are \$39,000 yearly. The Catholic and Episcopal denominations have each a hospital, and the Catholic a reformatory institution. The public schools have 21 teachers and 859 pupils. The school buildings are of brick, with all modern appliances. St. Vincent's Academy, for girls, and St. Aloysius parochial school are Catholic, and there is an Episcopal parish school. One of the two business colleges is also a normal training school. The libraries are the Territorial Law library, that of the Historical Society, and that of the Young Men's Christian Association. Three daily and numerous weekly newspapers are published. There are nine hotels, and the city has a Chinese quarter. The Territorial fair has been held annually at Helena, and it is also the seat of a United States land office. To the north lies the fertile valley of the Prickly Pear. Lumber and coal are near. Granite, marble, porphyry, sandstone, and limestone are found within city limits and within ten to twenty miles. Sand for mortar is washed down in flumes from placer mines. The court house, of native granite and sandstone, cost \$200,000, and has been used for the Capitol. By the act of admittance of the State, 182,000 acres of land were given by Congress for public buildings at the capital. There are many beautiful residences and fine parks. A steamer runs eighteen miles to the famous cañon of the Gates of the Rocky Mountains. Four miles from the city are the Hot Springs, a health resort, with a new hotel costing \$100,000, and bathing-pool

120 by 300 feet. Water is conveyed six miles at a temperature of 150°. The industries embrace foundries, machine-shops, saw and planing mills, brick works, and breweries. The latitude of Helena is 46° 30'; longitude, 112° 4'; altitude, 4,256 feet; annual mean temperature, 48°.

Houston, the county seat of Harris County, Tex., in the eastern part of the State, 50 miles northwest of Galveston, on the bank of Buffalo Bayou, at the head of tide-water and navigation. A ship channel, 200 feet wide and 12 feet deep, from the Gulf of Mexico, through Galveston Bay, to the city is under construction by the United States Government. At present vessels of nine feet draught pass up Buffalo Bayou to within a few miles of Houston. The facilities for transportation promised by this undertaking have led to the extension of railroads, bringing the produce of western Texas to Houston as a shipping point. More than 5,000 miles of railway reach tide-water at this point, and two lines of Mexican railway also have their base here as the nearest available connection with Atlantic ports. No great engineering difficulties exist in the construction of the channel, and its completion will greatly facilitate the coastwise trade of the United States and commerce with Mexico, Central America, and the West Indies. The city was founded in 1836, and has had a steady growth. Its population in 1887 was estimated at 35,000; in 1889 it was 42,000. Its taxable wealth in 1889 was \$11,400,000. In 1887 there were \$750,000 invested in public works—gas, water, and electric lights; \$2,750,000 in manufactures; \$300,000 in shipping; and \$1,400,000 in banks (including surplus). The deposits in national banks Dec. 31, 1887, were \$1,789,191.68. The manufacturing interests have advanced. Two cotton-seed-oil mills have been erected, at a cost of \$500,000, and there are five cotton presses, which for the year 1887 handled 748,036 bales. The repair and manufacturing shops of the Southern Pacific Railroad Company have been erected here, a car-wheel foundry, and also a large brewing establishment. The Live-Stock Association of Texas selected Houston as a central market of the cattle-growing interests, and the construction of a refrigerating plant of \$500,000, to which the city contributed \$255,000 was resolved upon in March, 1887. There are several foundries, soap factories, a fence-wire, a broom, and a plow factory, and other industrial enterprises. The total value of manufactured products and sales of merchandise for 1888 was \$23,250,000. Houston is the center of twelve lines of railway, the tonnage of which for the year ending Sept. 30, 1887, was estimated at 2,229,295 tons. It is also a postal center, and the erection of a post-office building has been authorized by Congress. Houston is the chief distributing point for groceries, provisions, hardware, and agricultural implements in southern and eastern Texas, and is one of the chief marts in the State for cotton, lumber, hides, and agricultural products. The lumber interest is large, as the city lies on the edge of the great pine forests of eastern Texas. In 1887, 346,690,000 feet were shipped. Truck-farming is profitable. The city has a street railway and a complete system of water works; artesian water is obtained at a depth of 150 to 200 feet. The streets are wide, and the drainage good. The

public-school system is unusually good. The public buildings are the Market, Masonic Temple, court-house, and Cotton Exchange. The two last named have been built within a few years. There is a free library, controlled by a lyceum society, and here also is the Texas Geological and Scientific Association. Harris County contains fine agricultural and grazing lands.

Huntsville, a city and the county seat of Madison County, Ala., in the northern border of the State, 10 miles north of Tennessee river and 98 miles west of Chattanooga, 640 feet above the sea-level. The population in 1889 was about 9,000, largely recruited from the North. The cotton yield of the county is 23,000 bales annually, but the farmers are engaging extensively in raising stock and the growth of corn, wheat, clover, grasses, vegetables, and fruits. The annual corn crop is estimated at \$1,500,000; the cotton crop, about \$1,000,000; peas and beans, 50,000; potatoes, \$100,000; horses, cattle, and sheep, \$1,000,000. The largest fruit nursery in the United States is in this county. Immense forests of hard woods are tributary to the city, and the lumbering and wood-working industries are prominent. There is limestone near, and iron, lead, and silver ores have been found; but little mineral development has yet taken place. A direct road will soon connect it with Gadsden, and another with Birmingham. A dummy line runs out to Monte Sano, a watering-place three miles and a half northward. Turnpikes run to Tennessee river landing, and radiate in other directions. A cotton factory is running over 10,000 spindles, and in 1887 declared a dividend of 22 per cent. Besides this, Huntsville has a cotton compress and one of the largest cotton-seed-oil mills in the South, several saw and planing mills, a broom factory, wagon and carriage factories, and many minor shops. A tobacco house is in progress. Huntsville's streets were macadamized fifty years ago, and are shaded with aged and handsome trees. She has many fine old houses, as well as some new ones, and new business blocks. A good hotel has been built. The Federal building will cost \$100,000. The churches are mostly of brick or stone, and there are a boys' institute and two girls' seminaries, in addition to the public schools. The town is lighted by gas and electricity, derives its water from a cold spring in the hills that yields 1,250,000 gallons an hour, and has an opera house, telephones, a market, and a paid fire department.

Junction City, the county seat of Davis (or Geary) County, Kan., near the geographical center of the United States, 138 miles west of Kansas City. The population is about 6,000. It is the northern terminus of the Missouri, Kansas, and Texas Railroad, and the southern terminus of the Junction City and Fort Kearny Railroad, near the confluence of Smoky Hill and Republican rivers, where they unite to form Kansas river. The town was laid out in 1858, on a site chosen for its natural advantages—easy grades for road-making, abundance of pure water, excellent natural drainage, and salubrity of climate. The rivers that border the town on three sides are noted for their even flow of water. They seldom overflow or run low. Junction City is in the center of the great limestone region of

the State, and the fine stone quarries near the town are easily worked. Two test borings have proved the existence of salt beneath the city in great purity. Junction City is legally ranked as "a city of the second class." It has water works that supply 500,000 gallons a day of pure well water. The town is lighted by electricity, operated by water power, and a company is organized to locate and build a system of street railroads connecting with Fort Riley, three miles distant, to be operated by electricity. There is a telephone system, a board of trade, a building and loan association, 2 banks, 2 railroad stations with repair-shops, 4 good hotels, 2 steam grain elevators, 3 grain warehouses, a butter and cheese factory, a canning factory, 2 grain and flouring mills, a pressed-brick factory, a marble yard, an iron foundry and other manufactures. Four weekly papers are published. There are 4 school-houses with a capacity of 1,200 pupils, employing 17 teachers, and 2 private schools, 10 churches, a city hall, an opera house which cost \$35,000, 4 public libraries, and an efficient fire department.—**FORT RILEY** is practically a suburb of Junction City, and the exclusion of all trade, manufactures, and the usual avocations of civil life from the post must cause it to remain so. The military reservation consists of 20,000 acres, including portions of the valleys of the Republican, Smoky Hill, and Kansas rivers, with wide stretches of variegated uplands. The valleys are exceedingly fertile, with numerous groves of forest trees, and well watered by the rivers and small tributaries supplied by springs. This reservation was selected by a committee appointed by Congress in September, 1852, and was first occupied in May, 1855. It was at first named Camp Center, on account of its position in the American Union, but by general order of the War Department, June 27, 1855, the name was changed to Fort Riley, in honor of Gen. Bennett Riley, of the United States Army. Prior to 1887 the approximate sum of \$500,000 was spent in the construction and repair of buildings, thus maintaining it as an important military post. In January, 1887, an act of Congress authorized the Secretary of War to establish upon the military reservation of Fort Riley a "permanent school of instruction for drill and practice for the cavalry and light artillery service for the army of the United States." Since that date elaborate plans have been prepared, and the work of construction has proceeded rapidly. Up to October, 1889, \$800,000 had been expended, and the superintending officer estimates that it will require \$500,000 more to complete the improvements. The principal structures now completed or under contract are as follow: Five artillery barracks costing \$46,250; 5 artillery stables, \$57,495; 5 gun-sheds, \$40,000; 12 cavalry barracks, \$115,950; 12 cavalry stables, \$156,000; 1 large mess hall, \$33,000; water works, \$43,000; iron bridge and approaches on Kansas river, \$16,000; guard-house, \$5,000; construction and grading of roads, \$25,000; 1 barracks, 2 administration buildings, 62 sets of officers' quarters; and sundry store-houses, shops, and outhouses, cost not definitely ascertained. The post is lighted by electricity and heated by steam from one central furnace, and is supplied by reservoir pressure

with pure well-water. The capacity of the water works is 1,000,000 gallons a day. A complete sewerage system has been constructed. All improvements are planned and constructed in the most substantial manner. Fort Riley is to be the largest and most important military post on the Western Continent, and will probably be made headquarters for the breeding of the various grades of cavalry and artillery horses and a general recruiting station for the United States Army. The expenditures for labor are now about \$300,000 a year, exclusive of pay of officers and men and cost of supplies. It is estimated that the cost of maintaining the post when in full running order, including pay and all supplies and expenses, will approximate \$1,500,000 a year. The latitude of Fort Riley is 39° 4' north; longitude 96° 47' west; altitude, 1,300 feet above the sea.

Laramie City, the county seat of Albany County, in the southeastern part of Wyoming Territory, on the line of the Union Pacific Railroad and on the east bank of Big Laramie river, 57 miles from Cheyenne, 573 from Omaha, and 163 from Denver. The town site was chosen in 1868, and the city incorporated in 1873. The population is about 7,000. On the east and west lie mountains rich in ores, and to the north and south stretches a plateau of 2,000,000 acres devoted to stock-raising and agriculture. The latter industry has received an impetus from the introduction of irrigation. The Pioneer Canal, the first irrigating ditch in the Territory, pours its surplus into the river three miles north of the city. Water flows through the streets on either side in summer. The floating debt is \$16,000; the bonded debt, \$40,000; assessed valuation of property, \$1,500,000; rate of taxation, 8 mills. Spring water for domestic purposes is supplied in abundance by water works. Artesian water is also used, reached at a depth of 150 feet. The drainage is excellent, from the slope of the land and nature of the soil. Four miles of sewers were constructed in 1888. There is a fire department, telephones, and electric lights. There are eight churches. The public-school system was established in February, 1869. There is a handsome main building of dressed brick and stone, costing \$30,000, having an attendance of 800 pupils, and another known as the West Side. There is also a Roman Catholic school. The building for the University of Wyoming, located here, was completed in 1887 at a cost of \$75,000. It is of native stone, and has an assembly hall capable of seating 800 persons. The course of education is free, and open to both sexes. There are two banks, with an aggregate capital of \$200,000; a loan and trust company, with capital of \$190,000; and a land and improvement company for Albany County. One daily and two weekly newspapers are published, and there is an opera house and two hotels. The city is a supply center for miners, ranch men, and timber, for a radius of 200 miles. The resources of Albany County are rich. South of Laramie 13 miles lie the Soda Lakes, covering 100 acres, and containing 50,000,000 cubic feet of chemically pure crystallized sulphate of soda in deposits 9 to 12 feet thick. The salts are held in solution by spring water at the bottom, and the

amounts removed are soon replaced. The soda works were built in 1886 at a cost of \$500,000. There is a railroad to the lakes. Building stone abounds, and red and brown sandstone quarries are within three miles of the city. Timber is within fifty miles, and there are two large planing mills. Clay and glass sand abound, and glass is manufactured at the rate of 42,000 boxes a year. A bed of gypsum of 1,000 acres lies almost along the railroad track, and plaster-mills will soon be built. There are a tannery, a brewery, a flouring mill, two bottling works, a soap factory, brick and lime kilns, large machine and repair shops, a rolling mill and spike mill, and Burnetizing works of the Union Pacific Railroad. It is the seat of the Territorial fish hatchery, and also of a United States penitentiary. The court-house and Laramie Club are notable buildings. There are handsome residences and business blocks, and fine ranches and stock farms are to be seen in the adjoining country. The altitude is 7,187 feet.

Lewiston, a city of Androscoggin County, Me., the second city in population in the State, on the left bank of Androscoggin river, thirty miles northeast of Portland, on the line of the Maine Central and Grand Trunk Railways. The population in 1870 was 13,602; in 1880, 19,083; in 1889, estimated at 25,000. Three railroads touch the city, and horse-car tracks are laid through the principal streets. The city owns and maintains the water works and electric-light plant. It also owns, in connection with Auburn (a city of 13,000 inhabitants, on the opposite bank of the river) six miles of railroad, connecting at Lewiston Junction with the Grand Trunk Railway. The best primary school-building in the State has been built during the year, at a cost of \$50,000; and a new Roman Catholic Church is approaching completion, which will cost about \$150,000. Bates College has just completed one of the finest laboratories in New England, and is about to erect an observatory on Mt. David, at a cost of \$30,000. Lewiston has one of the finest and most complete city buildings in New England, which was erected at a cost of \$300,000. In addition to the electric-light plant owned and maintained by the city for its own use, two other electric-light companies, which run by water power, furnish light and power. There are eighteen cotton and woolen mills, with an invested manufacturing capital of \$9,000,000, operating 300,000 spindles, the annual consumption of cotton being 27,000,000 pounds; the number of males employed in the mills is 4,000; the number of females, 3,300; total monthly disbursements of manufacturers, \$225,000; production of cotton and woolen goods yearly, 54,000,000 yards. The water works net the city a good yearly surplus; and the railroad is self-sustaining. The school system is most thorough. A board of trade, with 300 members, recently established, is finely located and in a flourishing condition.

Lexington, a city, and the county seat of Fayette County, Ky.; population about 20,000. It is in the center of the blue-grass district, which is noted for its extraordinary fertility and the perfection to which the blue grass (*Poa sylvestris*) comes. This fertility is due to the fact that the soil is made from and overlies a blue

Silurian limestone that decomposes easily. Lexington is one of the oldest settlements in the State, having been named on the day when the news of the Battle of Lexington, Mass., April, 1775, reached that frontier point. It was the meeting-place of the first Legislature (1792), and has been the home of many distinguished men. Some of its long streets are exceedingly beautiful avenues between spacious grounds surrounding stately old houses. Here are the University of Kentucky, a military school for boys, and three seminaries for young ladies; and here meets the State Chautauqua Assembly. Lexington derives its largest reputation from the race-horses that have been bred there or in the immediate vicinity. The old families had raised fast horses long before the civil war, of which Lexington had hard experience. When the close of the war had made it possible to buy farms and blooded sires cheaply, shrewd Northern men, knowing the extraordinary capabilities of that climate and pasturage, invested largely in breeding farms, and now the principal of these are in the hands of men not natives of Kentucky. Running horses, or thoroughbreds, first received attention. Lexington, Longfellow, Ten Broeck, Leamington, Himyah, Virgil, and many others, famous on the running-tracks years ago, came from this locality. But before long all of the breeders at Lexington, and most of those elsewhere in the blue-grass district, turned their attention to trotting horses, since they were able to sell trotters to better advantage than runners when they did not turn out to be great racers. This has become an immense business, and a large area formerly planted with hemp or grain is now devoted to pasturage. For this class of horses, the famous sires Mambrino Chief and Bellfounder had laid the foundation. In 1864 Lady Thorne trotted a full mile at Lexington in 2.30, and Mambrino stock took the lead. Almont, son of Rysdyk's Hambletonian, and Dictator were the next celebrities. The latter is the sire of Jay-Eye-See (record, 2.10); Phallen (2.13 $\frac{1}{4}$); and Director (2.17). These were followed by "the mighty George Wilkes," the sire of more trotters of great speed and sires of trotters than any other horse on earth. Year by year the record was reduced, until dozens had done better than 2.15, and finally Maud S. trotted a full mile in 2.08 $\frac{1}{4}$. Many large farms are now devoted to this industry, and enormous prices are paid for animals of promise or approved power. To the spring races at Lexington the horsemen of the whole country look to see what is coming forward; and at the annual sales from 800 to 1,000 highly bred horses are sold, the average price in 1889 exceeding \$300, while the total receipts by blue-grass breeders was above \$250,000. In addition, large sales of thoroughbred take place, but these are less prominent at Lexington than at some neighboring towns, such as Paris. This business brings many strangers to the little city, and gives it an unusually alert and cosmopolitan air; but it also promotes to a great degree the evils that unfortunately attend horse racing. Lexington is also famous for the manufacture of "Bourbon" whisky, a beverage made of a mixture of corn and grain, which is peculiarly strong in alcohol and fiery in its taste. There are several large distilleries in or near the

city, and their product amounts to many thousand of barrels annually.

Lockport, a city and the county seat of Niagara County, New York, in the northwestern part of the State, on the Erie Canal, and on branches of the New York Central and New York, Lake Erie and Western Railroads. Lockport was a post-office in 1822, and had its origin in the construction of the five canal locks cut through solid rock which at this point overcome the difference in levels of sixty feet. The work occupied a large force four years. From these locks the city takes its name. It was incorporated in 1829 as a village, and grew rapidly from the enlargement of the canal in 1835, when the locks were made double. In 1845 the population was 12,000; in 1888, 20,000. Between Buffalo and Lockport there is a canal level of 31 miles, 568 feet above the mean level of the Hudson at Albany. The greater part of the city is on the plateau forming the edge of the Erie level. More than 90 per cent. of Niagara County is under cultivation. It is the second county in the State in the production of wheat, and claims one tenth of the entire yield of fruit. It is the home of the Niagara white grape. Gray and red sandstone, used for paving-stone and construction purposes, lie beneath the surface limestone. A ten-mile railroad, to connect with the Rome, Watertown, and Ogdensburg, was surveyed in 1888. Lockport is the third city in importance as a shipping point between Buffalo and New York, and is a through billing point to all parts of the continent. During 1888, 100 new dwellings were erected, and \$230,000 expended on commercial buildings. Telephone communication is held with towns within a radius of sixty miles. Three daily papers are issued. Sanitation is directed by a board of health. New water works, of the Holly-Gaskell system, have been completed. To increase the water supply a company was chartered in 1886 empowered to draw water from Niagara river to be discharged into Lake Ontario. A canal has been proposed 200 feet wide and 20 deep, to yield 363,060 horse-power, which, in addition to the supply of pure water for domestic use, will be available for commercial and manufacturing purposes. A volunteer fire department is provided with electric alarm. The city is lighted by gas, and has street railways. One fourth of the city tax is levied for public schools; these are five primary, one union, and one high school, and a circulating library is maintained by the school money. There are seventeen churches. A convent and a young ladies' academy are connected with St. Patrick's. The Young Men's Christian Association has a library, gymnasium, etc., and during the winter conducts a course of public entertainments. There is a new court-house of cut sandstone. The New York Central and Hudson River Railroad has a new passenger depot, and there is a fine opera house and several halls capable of seating large audiences. The surplus water of the canal at the upper level is utilized in two races, one in the form of a tunnel, opposite each other, and each with a fall of fifty-three feet to the canal below. Along the line of this water power are large stone flouring mills, the works of the Holly Manufacturing Company, manufactories of mill-

ing machinery, a planing mill, a canning factory, and machine shops and foundries that manufacture steam dredges, boilers, engines, water wheels, saws, stave, broom, veneer, and chair machines, tackle blocks, and railroad trucks. The surplus water below the locks is discharged into a natural stream flowing with rapid fall northward to Lake Ontario. Here are a saw mill, employing 200 men and handling 15,000,000 feet of lumber and timber a year, two paper and one rolling mill, an indurated-fiber company, turning out 540,000 pieces yearly, a wood-pulp mill, and electric smelting and aluminum works. Others manufactories are of cotton-batting, shirts, filters and coolers, barrels, brooms, staves and heading, carriages, furniture, files, and reversible seats. Glass-works are in operation, and cider mills, refining by sand. The Holly steam heating system had its origin at Lockport.

Meriden, a city of New Haven County, Conn., midway between Hartford and New Haven, eighteen miles from either, on the New Haven and Hartford Railroad; latitude $41^{\circ} 42'$ north, longitude $72^{\circ} 47'$ west: population in 1880, 18,340; in 1887, 24,309. It became a city in 1867. It is lighted by electricity and has good electric-car service, water from a mountain reservoir, electric fire alarm, and a paid fire department. The town has 3 post-offices, 5 banks, 15 churches, 18 public-school buildings in which are employed 84 teachers, 1 German and 1 parochial school, and 1 convent. Its high-school building and its Congregational church are among the finest buildings in the State. The State Reform School is here. The school population for 1889 was 5,651; the "grand list" for the same year was \$10,000,000. The principal productions are electro-plated goods, gas and lamp fixtures, lamps, ornamental bronzes, cast, forged, and malleable iron, brass kettles, casters, door latches, locks, sleigh, door, table, and call bells, builders' and carriage-makers' hardware, spoons, screws, vises, coffee-mills, power presses, pocket and table cutlery, steel pens, harness trimmings, flint glass, reed organs, orguinettes, shot-guns, piano stools, clocks, and woolen goods. Meriden has a railroad of its own connecting it with Cromwell on the Connecticut, and another connecting it with Waterbury. The Curtis Home is an institution built by the late Lemuel J. Curtis, for aged women and orphans, and endowed with \$600,000. The Hon. I. C. Lewis, of Meriden, has recently finished a brick and free-stone business block, at an expense of \$75,000, and given it to the trustees of the Meridian City Mission. A soldiers' monument was erected in 1875, at an expense of \$15,000. Meriden is in an interesting geological locality, surrounded by trap rocks rising 900 feet above the waters of Long Island Sound, among which Prof. William M. Davis has recently discovered the ash-bed of an extinct volcano.

Moncton, a town of Westmorland County, New Brunswick, at the head of navigation on Petitcodiac river, at the grand junction of the Intercolonial Railway system, 186 miles northwest from Halifax and 89 miles northeast from St. John. It was settled in 1763 by two families of German descent from the vicinity of Philadelphia. The population in 1871 was 1,200; in 1881, 5,032; in 1889, estimated at 9,000. The assessed valuation is \$2,000,000; valuation

of property exempted from taxation, \$1,800,000. Moncton is the terminus of the Buctouche and Moncton railway; two short lines—extensions of the Grand Trunk and the Canadian Pacific—are surveyed across the province to this point; and the lines of the Intercolonial from Halifax, from Quebec, and from St. John, center here. The general offices and the workshops of the last-named railway are also here. The Intercolonial Railway yard covers 95 acres, and contains 20 miles of sidings. The railway buildings cover 8 acres, and \$100,000 is being expended this year in enlarging the machine shops and providing accommodations for increasing traffic. Moncton is supplied by water from two reservoirs, the first having an elevation of 140 feet and a capacity of 80,000,000 gallons, the second having 200 feet elevation and a capacity of 40,000,000 gallons. The water supply is adequate for a population of 30,000. The town is lighted by electricity. There are 1 high school and 7 common schools, having 22 teachers, 8 churches, 2 daily and 2 weekly newspapers, and 3 banks. The principal manufacturing establishments are a sugar refinery, with a capital of \$300,000 and an annual product exceeding 70,000 barrels; a cotton mill, with a capital of \$300,000, and having 12,000 spindles; a flouring mill, with a capacity of 300 barrels a day; an iron foundry, with a capital of \$35,000 and an annual product worth \$70,000; manufactures of agricultural implements, wooden ware, carriages, steam engines, mill machinery, brass and iron hardware, etc. The imports increased from \$63,498, in 1880, to \$851,729, in 1889, and exports increase from \$12,718 in 1880 to \$283,195 in 1889. A bill for a city charter is now in preparation.

New Britain, a city of Hartford County, Conn. The town was incorporated in 1850 and the city in 1870. The population, which was 3,029 in 1850, was 13,978 in 1880, and is about 18,000 in 1889. It is largely a manufacturing city, having 173 mills, manufactories, and business establishments. The large hardware establishments have greatly increased their facilities and buildings within ten years. The New York and New England Railroad passes directly through the city, and the New York, New Haven and Hartford main line within two miles, with a branch line to the city, connecting with the New York and New England. A fine passenger station of stone and brick was completed in 1887, and is used by both roads. A tramway on the principal streets was opened in the autumn of 1886. The water supply of the city, which comes from Shuttle Meadow Lake, has been increased by the construction of the Panther Swamp Canal, and is now abundant. Sewers extend to nearly all parts of the city. The principal streets, buildings, and stores are lighted by electricity. A new building for the Connecticut State Normal School was completed and opened in 1883. The Mechanics' National Bank, the second bank of discount in the city, was opened in 1887. A large Roman Catholic cathedral is building, and also a stone church for the Methodists. The Young Men's Christian Association building, to cost about \$50,000, was erected in 1887. The New Britain "Herald" was consolidated with the "Observer" in October, 1887, and a daily

and weekly edition are issued. A State armory, an imposing brick structure, was erected in 1887. The New Britain Institute, in 1887, received a portion of the bequests of the late Cornelius B. Erwin, and has made considerable additions to its library and reading-room.

Newburgh, a city of Orange County, N. Y., on the west bank of Hudson river, 60 miles above New York city. It is surrounded on three sides by mountains. It covers 4 square miles, and is, for the most part, built upon a series of terraces, averaging 150 feet above the river. It has a population of about 25,000. Its harbor, Newburgh bay, is 8 miles long, with a front of from a mile to a mile and a half, and has a depth of from 30 to 60 feet. The facilities for lading are better, and elevator charges for grain less than in the harbor of New York. Newburgh has a large forwarding business in lumber and coal also. For the latter it is a large market; coal from Pennsylvania mines is transhipped from rail to coasters and barges, destined for all districts of New England and Canada accessible by ocean, lake, river, or canal. Returning vessels are often loaded with lumber. The West Shore Railroad runs through the city, and the Erie into it. The Lehigh and the Ontario & Western connect, and ferries, which ply winter and summer, connect with the New York Central, New York and New England, and the Newburgh, Dutchess, and Connecticut lines. Eight lines of steamers ply to and from the city regularly, in addition to the two ferries, and innumerable tramp vessels increase the trade. Newburgh owns a large fleet of river craft—steamboats, schooners, and barges. It is a favorite place for excursions. The old stone house, which was the headquarters of Washington during the last years of the Revolutionary War, is preserved within the city limits in its original condition, at the expense of the State, and attracts many tourists. The city is lighted by gas and electricity, and is abundantly supplied with water from a lake three miles distant and 276 feet above the lower level, affording ample supply to extinguish fires in the business part without engines. The higher parts are fed from a high-level reservoir, filled by pumps. The fire department is well equipped. There are 4 daily newspapers, and 4 banks. Newburgh is especially proud of its public schools, of which there are 1 primary, 3 graded, and a free academy. The private schools include the Newburgh Institute, which prepares for college, a boarding-school for girls, and 3 parochial schools controlled by Roman Catholics. There is a free public library of 20,000 volumes, which is also abundantly supplied with periodical literature. The Young Men's Christian Association numbers 600, and has a handsome building, with library, and all the usual accessories. The churches number 24, and there are a Children's Home, a Home for the Friendless, St. Luke's Home, and an almshouse which is largely self-supporting by means of its farm. The rate of taxation is about two mills to the dollar. The city has a board of trade. Cheap building is facilitated by the neighborhood of the great brick fields of the Hudson, and most of the buildings are of brick. The manufactures include wire goods, paper, shoes, plaster, lime, engines, machinery, soap, boats, paper boxes, woollens, cot-

tons, carpets, clothing, carriages, hats, brushes, tiles, and wood-work. Among the machines for which Newburgh is famous are the Wright engines, used upon the Brooklyn Bridge, and lawn mowers.

Norwich, a city of New London County, Conn., at the head of tide-water on the river Thames, at the base of a high bluff, 14 miles from Long Island sound, 136 miles from New York, and 95 miles from Boston. Its population is about 25,000. It is the southern terminus of the Norwich and Worcester Railroad, and a daily line of passenger and freight steamers connect it with New York. The New London Northern Railroad passes through the city. Horse-car tracks are laid in the principal streets, extending out to the suburban villages, and gas and electric lights are in general use. The water works have a sufficient head to throw a stream over the highest buildings. Norwich is a large manufacturing center, having 40 establishments of various kinds within its limits which employ 5,500 hands, to whom is paid \$2,160,000 a year. The making of cotton and woolen fabrics, fire-arms, paper, merchantable iron, printing presses, and locks are among the chief industries. The four cotton-mills, whose aggregate capital is \$2,750,000, run 184,000 spindles, employ 2,800 operatives, and pay \$810,000 for labor, manufacture 34,500,000 yards of cloth, and consume 8,650,000 pounds of cotton annually. The Ponemah cotton mill, which is said to be the largest but one in the country—being a trifle less than a third of a mile in length—employs 1,500 hands, and turns out yearly 20,000,000 yards of goods. Norwich has an excellent harbor and is accessible to vessels drawing thirteen feet of water. It does a large lumber and coal trade, and also deals heavily in cotton, wool, and iron. It has 6 national banks, with a combined capital of \$2,320,000, and 3 savings banks whose aggregate deposits amount to more than \$13,000,000. There are 25 churches and 22 school buildings. The Free Academy was built and endowed by private subscriptions, amounting to \$260,000. Within the past three years, Wm. A. Slater (son of the late John F. Slater, who gave \$1,000,000 for the education of Southern blacks) has built and given to the Free Academy a fine building at a cost of nearly \$200,000, in memory of his father. This is to be used for public lectures, graduating exercises, mineral and floral collections, a library, music room, etc. A large hall in the building is to be used for an art museum. Through Mr. Slater's generosity, an agent has been sent abroad to purchase works of art for the museum, and in a few months the collection, one of the largest and finest in the country, will be open to the public. Norwich has many beautiful residences. From its picturesque situation and its many attractive features, in the way of public buildings, parks, and streets shaded by elms and maples, the city is known as "the Rose of New England"—a name given it by Henry Ward Beecher, who was an enthusiastic admirer of the place.

Pensacola, a city, and the county seat of Escambia County, Fla., in the northwestern part of the State, on Pensacola Bay: population, about 15,000. The bay is 30 miles long, and from 3 to 4 miles wide, affording a land-locked

harbor. The water on the bar is 23 to 26 feet deep. Pensacola is the site of a United States navy-yard, upon which \$18,840 were expended in 1888 for repairs, maintenance, etc.; no improvements were made during the year. For the year ending June 30, 1889, the foreign vessels that entered numbered 495; American, from foreign ports, 30; coasting vessels, 97; making a total of 622, with crews numbering in all 7,801 men, and aggregate registered tonnage of 430,334. The foreign vessels cleared numbered 499; American, for foreign ports, 34; coasting, 70; number of men, 7,899; tonnage, 402,909. The total value of exports, foreign and coastwise (at valuation 15 per cent. below real value), was \$3,748,154; value of imports from foreign ports, \$37,705.16. Imports have fallen off in salt, steel rails, and fertilizers, the last two items heretofore received from abroad having for the past season reached Pensacola by coasting vessels from home ports. The amount of lumber and timber exported shows a grand total of 318,318,800 superficial feet. This does not include shipments of lumber, timber, shingles, doors, sashes, and blinds by rail to interior points. In June, 1889, Pensacola was selected as permanent headquarters of the Export Coal Company, for supplying the Cuban and West Indian coal trade from the Alabama mines. The Louisville and Nashville Railroad is constructing wharves, and it is estimated that the export of coal will eventually reach 400,000 tons per annum. The fishing business employs about fifty vessels. Pensacola has three railroads—the Louisville and Nashville, Pensacola and Atlantic, and a local road of ten miles. There is also a marine railway. The city has gas and electric lights, a street railway, water-works, eleven miles of water-mains, with pressure of eighty pounds, and a fire department with electric fire alarm. There are five public schools, and churches of the various denominations. Two daily and two weekly newspapers are issued. Of a dozen city parks but one has been improved. There are twenty miles of avenues for driving and riding. Three building associations are in operation. Pensacola's Federal building cost \$250,000; the county court-house, \$45,000; the opera house, \$75,000. Two rifle companies have a fine armory. The manufactures include two iron foundries and an ice factory with capacity of forty tons a day.

Phenix, or Phoenix, the capital city of Arizona, and the county seat of Maricopa County; population 8,000. The county has an area of nearly 10,000 square miles, through the center of which flows Salt river, a branch of the Gila. Twenty years ago this valley was an arid waste. Pioneers showed that the soil and climate were adapted not only to general agriculture, but particularly to the raising of both wine and raisin grapes, and of semi-tropical fruits. Irrigation works, taking water from Salt river, and in several cases following prehistoric canals, have been extended, until they now exceed 300 miles in length, and are capable of watering 250,000 acres. About 18,000 people inhabit the valley, where several villages have arisen. Phenix owes its name to the circumstance that remains of a prehistoric "pueblo" are there—the idea being that the new city is an old one revived. Its site was surveyed in 1870, the

"blocks" being made 300 feet square and the main streets 100 feet wide. But the Apache Indians were then so much of a terror in this part of Arizona that little progress was made until after Gen. Crook's removal of them in 1876-'77. After that time the advance was rapid. In 1883 the great Arizona irrigating canal was begun, and its progress gave employment to hundreds of men, until its completion, in 1887, at a cost of \$700,000. Since then, other large canals have been made. On July 4 of the same year Phenix was connected by a branch railroad with the Southern Pacific main line, at Maricopa Wells, 35 miles southward. A mercantile business had already been planted there, which has now outgrown that of any other town in Arizona, and amounts to \$2,000,000 a year. Its customers are found in a vast area of ranch-lands and in the many mining communities scattered through the surrounding mountains. A chamber of commerce fosters this business and all public improvements, and spreads information that is likely to attract immigrants. Phenix has been the county seat of Maricopa County since 1871, and has a handsome brick court-house, with a clock tower, which occupies a small park in the center of the city. The United States Court of that district has rooms in it. Another little park surrounds the city hall, and a third the main school building, which cost \$22,000 and has been supplemented by two others costing \$14,000. All these, and the handsome new fire hall, are of brick. There are churches of various denominations, and several benevolent orders have branches here. The Masons and Odd Fellows are each erecting costly buildings. Both the Methodists and the Presbyterians are preparing to organize collegiate schools, and the Territorial normal school is at Tempe, a flourishing, fruit-growing town a few miles away. About \$200,000 worth of buildings are in course of erection or contracted for. In January, 1889, the Territorial capital was removed from Prescott to Phenix. Shortly after the assembling of the Legislature in the latter city, a commission was appointed to prepare for the building of a Capitol. Out of several sites that were offered free, one of ten acres just west of the city, was selected. A tax decreed will yield about \$4,000, which the commission will expend in laying out these grounds, planting trees of the great variety that this semi-tropical climate permits, and laying the foundation of the building. The street cars along the main street now run to the proposed gate, and their tracks will be extended through the new street that is to encircle the Capitol grounds. Phenix has all the improvements required in a modern town—a municipal organization, a chamber of commerce, police and fire departments, public water in pipes and by surface irrigation, gas and electricity for illumination, street cars, telephones, two daily newspapers, banks, and loan companies. Much attention has been paid to the public planting of shade trees and to the cultivation of flowers and shrubbery. The mountains that cut the horizon in every direction, abound in gold mines, some of which yield very largely and sustain populous communities. The landscape is enhanced by almost continuous clear weather. The summers are long, dry, and hot; but in winter the mercury

rarely sinks lower than 25°, and frost is almost unknown. An ostrich farm is one of the curiosities of the neighborhood, and date palms and bananas are grown about the houses, together with the orange, lemon, olive, and guava trees.

Provo, the county seat of Utah County, Utah Territory, on the eastern shore of Utah Lake, 45 miles from Salt Lake City, and 81 miles from Ogden; population, about 6,000. By the Denver and Rio Grande Railroad it has direct communication with the East, while the Utah Central also passes 200 miles to the south. The city is the supply quarter largely for southern Utah. Wool shipments are made in return. The county is the second in population in the Territory. The assessed property valuation is \$3,386,000, which is about one third of its cash value. The soil is rich, and by means of irrigation produces in abundance grains, vegetables, and fine fruits. Provo is called the "Garden City of Utah." Hop-culture is being introduced on the mountain benches of the Wasatch range. Fine iron, of a nature so free as to be used as a flux in the Salt Lake smelters, exists in unlimited quantities, and is easily worked. Coal of the best quality can be procured from the Pleasant valley district, and in 1888 a London syndicate negotiated for the purchase of large consolidated iron mines in the county, looking to the establishment of rolling mills at Provo, in addition to the foundries already built. The county owns large interests in the famous Tintic mining district. The only factory of fireproof iron-ore paint in the West is at Provo. Fourteen miles to the east are the mines of the North American Asphalt Company. Building stone abounds. The streets are wide, and present the features peculiar to Utah of flowing water and fine trees. Asphalt sidewalks are contracted for. Water is supplied by Timpanogas river and by artesian wells, being reached in these last at depth of less than 200 feet. The water power of Provo for manufactures is the best in Utah. Electric-light and street-car companies have been incorporated. The schools include the Brigham Young and Proctor academies, and a fine district school-house has been recently built at a cost of \$20,000. The Mormon Tabernacle is a handsome building. Methodist, Presbyterian, and other denominations are represented. The Territorial Insane Asylum is located at Provo, and the south wing of its building has been completed, at a cost of \$120,000. The court-house, jail, and opera house are to be noted. A large woolen mill is in operation, the second in size on the Pacific coast. It occupies four buildings, costing \$280,000, and has 3,420 spindles and 215 looms, using 1,000 pounds of wool daily. The product of superior fabrics reaches \$200,000 a year. There are also three flour and three lumber mills. One weekly newspaper is issued, and the city has a board of trade.

Rome, a city and the county seat of Floyd County, Ga., situated at the confluence of the Etowah and Oostanaula rivers, which here form the Coosa in the northwestern part of the State. The population of the city is about 15,000. It is a railroad center of the industrial South, 70 miles from Chattanooga, 65 from Atlanta, 126 from Birmingham, and 65 from Anniston. The three main divisions of the East

Tennessee, Virginia and Georgia Railroad radiate from Rome, and it has in addition the Rome Railroad, connecting with the Western and Atlantic, the Rome and Decatur, through the Warrior coal fields, and the Chattanooga, Rome and Columbus. The Rome and Northeastern, chartered and surveyed in 1888, will connect with the Richmond and Danville at Gainesville, Ga. Floyd County, at the Piedmont Exposition, held in Atlanta in October, 1887, received the prize for best and most varied agricultural and mineral products. Iron and manganese abound. Within a radius of 25 miles are 6 iron furnaces, and ore is shipped to Birmingham and Anniston, Ala. Six miles from Rome are 2 large quarries of Egyptian marble, connected with railroads by side tracks. While not especially a cotton-growing region, the territory tributary to Rome supplies annually 80,000 bales, and has reached 100,000. Grain, grasses, and fine fruits are raised, and timber exists in large quantities. Two stave and buekler factories ship staves to France. The Oostanaula river is navigable 105 miles, and the Coosa 215, to within 70 miles of its junction with the Tallapoosa. When the removal of shoals from that point is completed by the United States Government, there will be direct communication with the Gulf, 750 miles. Five steamers ply upon the two rivers, the largest with a capacity for 800 bales of cotton. The supply of the Coosa yearly is 30,000 bales. The bonded debt of the city is \$312,900, and by provisions of charter can not be increased. Two national banks have a joint capital of \$300,000. Two iron bridges span the Etowah, and an iron draw-bridge the Oostanaula, the latter costing \$20,000. Rome has two street railways and one dummy line, gas, and electric lights. The water works have a tower 70 feet high, capacity of 80,000 gallons, and pressure of 80 pounds. The water is drawn from a well 12 feet in diameter cut through solid limestone rock, with transverse tunnels 6 feet in diameter and 60 feet long underneath the rock. In 1887 there were 6 miles of mains. The drainage is excellent. There is a fire department of 165 men, with electric fire alarm. One daily paper is published. Public schools were introduced in 1883; the main building cost \$20,000 and there are two others, one for white and one for colored pupils. There is also a high school with five grades. Rome Female College was established in 1845. Shorter College, also for women, was built at a cost of \$130,000 by Col. A. Shorter and endowed by him with \$40,000. There are 9 churches for whites, and several for colored people. The Gynecological Infirmary, a private institution, established in 1880, occupies 8 buildings and accommodates 90 patients. There is a Young Men's Christian Association and a Young Men's Library. The scenery about Rome is fine, and there are numerous drives and parks. The manufactures include a seale company, a rolling mill, a nail factory, a brick company with a capacity of 50,000 bricks a day, a foundry and machine shop, a cotton-tie, a plow, a stove, 2 guano, 2 ice, and 2 furniture factories, planing, flour, and cotton-seed-oil mills, a tannery, and a cotton factory of 3,000 spindles, and 2 compresses. The annual product of manufactured goods is \$2,000,000. There is a cotton exchange and a board of trade.

The Rome Land Company, which on June 1, 1889, owned \$1,125,882 in land, has done much to improve the city. The Armstrong Hotel, built for \$150,000, has a ball-room on the roof, glass-sided, and lighted by electricity. The opera house has a seating capacity of 1,000, and cost \$21,000. There is a city hall and a Masonic temple. The annual mean temperature is 60°; altitude, 700 feet.

Salt Lake City, the capital of Utah Territory, and county seat of Salt Lake County, the Zion of the Mormons, at the foot of the Wasatch mountains, at an elevation of 4,350 feet above sea-level. The population in 1889 was estimated at 35,000. The south shore of Great Salt lake is 20 miles distant, and the east shore 15. The Jordan river borders the city on the west. The city was founded in 1847, and the first log-house built is still preserved within the limits. It covers 9 square miles, and is divided into 21 wards, each of which has a Mormon bishop. The streets are laid out regularly at right angles, and are 132 feet wide. This includes sidewalks, which are 20 feet, and along which are trees and streams of water kept always flowing. The city is remarkable for its foliage, its fine gardens, and fruit orchards. The mean summer temperature is 74°; winter, 32°. In 1887 there was a real-estate boom, sales of land reaching \$3,022,267. In 1888 the transactions were \$5,355,666. It is the terminus of four railroads—the Utah Central, Utah Southern, Utah and Nevada, and Denver and Rio Grande—and several others are projected, particularly the Salt Lake and Los Angeles. There is a local road to Fort Douglas, a military post 5 miles distant. The city is lighted by gas, and has also electric lights. An electric street railway was chartered in 1888, and there are 13 miles of horse-car lines. Water is obtained from City creek, a mountain stream, and conducted through 30 miles of mains. There is also a system of irrigation supply from Utah lake, 20 miles distant. Hydrants are numerous, with head sufficient to force water above the highest buildings, and there is a fire department well equipped. The deposits in the six Salt Lake City banks for the year 1888 were in excess of \$6,000,000. The Union National Bank, capital \$200,000, is a United States depository. There are 3 daily and 5 weekly newspapers, an opera house and theatre, and 15 hotels. The Board of Trade has 200 members. The Territorial district-school system allows one graded school to every ward of the city, and there are other schools, both public and private. Deseret University, chartered in 1851, has been recently completed; \$85,451 were voted by the last Legislature to pay off all obligations and complete the structure, and \$32,000 were expended upon it in 1888. An appropriation for a deaf-mute institution in connection with the university, to cost \$25,000, was also recently made. The churches other than Mormon number 14, and represent the various denominations. The Temple, begun in 1853, of white granite, 100x200 feet on the ground, is nearing completion. When finished it will have cost \$10,000,000. It is surrounded, as is also the block containing the residence of the late Brigham Young, the tithing house, printing office, and business offices of the church, by a wall 8 feet high and 5 feet thick. The Tabernacle,

capable of holding 8,000 persons, and with an organ the second in size in America, has a length of 251 feet east and west, and is 150 feet wide. The ceiling is 65 feet above the floor. The roof is supported by 46 columns of sandstone, which form the wall, with spaces for doors, windows, etc. Grounds for a Capitol building have been given to the Territory. An exposition building for the annual Territorial fair cost \$25,000. An Industrial Home is building. The museum contains a valuable collection of Utah minerals and curiosities. There are 8 halls, 4 hospitals, 5 lodges of Masons, 4 of Odd Fellows, and 3 of Knights of Pythias, a land office of the United States, and a Signal-Service station. The Warm Baths and Hot Springs are frequented by invalids. Garfield and Lake Park are bathing resorts on Great Salt lake. Fine scenery in the cañons is reached by rail. The industries include 3 sampling mills and 5 smelting works, aggregating 12 stacks. The outlay of these smelters in 1888 was \$2,000,000, 270 men are employed, and the total transportation connected with their business was 120,000 tons. The total value of gold, silver, copper, and lead produced in Utah in 1888 was \$7,557,242. There are 7 planing, 4 flour, 1 woolen, and 1 paper mill, a tannery producing leather to the value of \$75,000, 7 foundry and machine shops, 4 breweries, and 15 miscellaneous manufactories, in addition to the Zion Co-operative Mercantile Institution, with a paid-up capital of 1,000,000, which imports one third of all merchandise used in the Territory, and manufactures clothing and boots and shoes. This institution is owned by Mormons, and has branches in all the Mormon cities and villages.

Sedalia, the principal interior railway center of Missouri, 190 miles west of St. Louis, 95 miles east of Kansas City, and about midway between the northern and southern boundaries of the State. The population in 1870 was 4,560; in 1880, 9,561; in 1888, 17,263, of which 1,414 were colored. It is the distributing point for the great grain and stock region of central and western Missouri, lying between the Missouri on the north and the Osage on the south. The existence of Sedalia is due to the building of the Missouri and Pacific Railway, which reached the place in 1861; and owing to the cessation of railway building during the war, it remained the terminus of the road for several years. The growth of Sedalia has been steady, though not so rapid as that of some other Western cities. The first house was built in 1860. During the civil war Sedalia was a military post; from there Gen. Nathaniel Lyon set out on the campaign that ended in his death at Wilson's creek. It was also the starting point from which Gen. John C. Frémont set out on his elaborate South-western campaign in the autumn of 1861. The town remained in the hands of the national forces throughout the war, except for a few days in October, 1864, when it was captured by the Confederate general Jefferson Thomson. Naturally it became the center of the Union sentiment of that part of the State, and at the close of the war, both the city and the surrounding country received a large Northern immigration, many soldiers who had campaigned in that vicinity returning as immigrants. The lines of the Missouri and Pacific Railway system enter Sedalia

from four directions, and the locomotive shops of that system are there. It is also the headquarters of the Missouri, Kansas and Texas Railway, the general offices and the car shops of the road being there. Sedalia was the principal theatre of the contest between the Knights of Labor and the Gould system of railways in the great strike of March, 1886, the end of which was largely brought about by a volunteer organization of the city of Sedalia, whose people, alarmed at the stagnation of business and the threatened destruction of their commerce, organized a law-and-order league, which completely broke the power of the Knights of Labor in central Missouri and relieved about 7,000 miles of railway from an embargo that had lasted nearly a month. Sedalia has nine public-school buildings, with an attendance of nearly 4,000 pupils. Several of its churches have houses of worship that cost from \$20,000 to \$30,000. The city is supplied with water by works that have a pumping capacity of 2,500,000 gallons a day. There are one gas and two electric-light companies, and one street-car line. There are four banks, three daily newspapers, two opera houses, and many fine public buildings, including a court-house, erected in 1884 at a cost of \$115,000. In 1889 Congress appropriated \$50,000 for a post-office building.

Shreveport, a city of Caddo Parish, La., in the northwestern part of the State, at the head of high-water navigation on the west bank of Red river, 500 miles above its junction with the Mississippi. The population is about 11,000—5,000 white and 6,000 colored. It was chartered in 1839, and contains an incorporated area of 1,800 acres. It is governed by a mayor and board of eight trustees, elected for four years. It is the seat of justice for the United States western judicial district of Louisiana, and State sub-division of Supreme Court. It is a terminal point of five railroads, viz., the Texas and Pacific, New Orleans Pacific, Vicksburg, Shreveport and Pacific, Shreveport and Houston Railway, and the Shreveport and Arkansas Railway, and a line of steamers plies between Shreveport and New Orleans. It is lighted by gas and electricity, and has water works, pipe sewers, and street-car lines. There are two daily newspapers. The value of real estate and improvements in Shreveport is \$3,000,000, and mercantile values reach \$4,000,000. It has two cotton compresses, and capacity for storing 20,000 bales. It receives about 100,000 bales annually, which, together with the hides, wool, wax, and other commercial articles handled, gives an exchange business of \$20,000,000 per annum. Shreveport has an oil mill, saw mill, furniture factory, ice works, machine and foundry shops, and other industries. There is a State board of health, a charity hospital, and a Government building. The city lies on the 32d parallel of latitude. The average annual rainfall is 52 inches; highest temperature, 102°; average, 88°; coldest, 5° above zero.

Sioux City, the county seat of Woodbury County, Iowa, on Missouri river, in the northwestern part of the State, at the point of the first great bend of the river southward. The population in 1880 was 7,500; in 1886, 22,358; in 1887, 30,842; in 1888, 40,162. The city has an altitude of 1,100 feet, is 544 miles west of Chicago, 270 miles southwest of St. Paul, and

100 miles north of Omaha. Owing to its geographical location, it is a gateway of trade for a territory stretching westward as far as Wyoming, and north to the British possessions. The area of northwestern Iowa tributary direct to Sioux City's trade is estimated at 8,000 square miles. This is emphatically the corn region of the West. The soil is for the most part sandy loam, 100 to 200 feet in depth, naturally underdrained. A crop failure has never been known. The average yield of corn is from 60 to 80 bushels an acre, and other staples are produced in proportion. In 1887 a corn palace was built in Sioux City at a cost of \$30,000—an original conception, which has since become a permanent and distinctive annual enterprise. The corn palace of 1888 was more elaborate than its predecessor, costing \$60,000; the building, 150 by 150 feet, covered entirely with stalks, husks, and ears of corn—white, yellow, red, etc.—artistically arranged in various designs. The dimensions of that of 1889, which was open from Sept. 23 to Oct. 5, were 240 by 120 feet, with a central tower 200 feet high, to contain a double auditorium and an immense music-stand. Sioux City is the third packing-place of commercial value in the United States, having five large pork and beef packing houses, costing upward of \$3,000,000, and with total capacity of 14,000 hogs and 2,000 beeves a day. The increase of hogs packed in 1888 over 1887 was 400,000. The Union stock-yards include 1,400 acres, and afford accommodation for 6,000 hogs, 10,000 cattle, 2,000 sheep, and 2,000 horses and mules. The sales of the yards in January, 1889, averaged nearly \$35,000 daily. Sioux City has an incorporated area of thirty square miles. It was founded in 1856, and as early as that date was the distributing-point by water carriage for trading posts, Government stations, and scattered settlements in the upper Missouri valley. Immigration to this territory began in 1880, and the city has developed since. In 1868 there was one train daily on the single railroad entering the town. In June, 1889, the railroad facilities included six great trunk lines, viz., Illinois Central, Chicago and Northwestern, Chicago, Milwaukee and St. Paul, Chicago, St. Paul, Minneapolis and Omaha, Sioux City and Pacific, and Union Pacific. The daily passenger trains number 35. The freights for 1888, handled at the city proper, were 62,000 car-loads. The Pacific Short Line is building direct between Sioux City and Ogden, Utah, shorter by 300 miles than any existing route. The Sioux City and Northern, to connect with the Manitoba system, will give direct communication with the Great Lakes. The Missouri river is navigable 1,900 miles above. The great railroad bridge, opened Nov. 26, 1888, cost \$2,000,000, and by its charter is free to all roads entering the city. A pontoon bridge, 2,500 feet long and costing \$46,000, was built in the spring of 1889. The banking capital of Sioux City, in 13 banks, is \$2,440,000. In 1887 there were 8 banks, with combined capital of \$1,100,000. A clearing-house was organized early in 1889. Loan and trust companies are numerous. The wholesale business of 1888 was upward of \$12,000,000. In the first four months of 1889 real-estate sales amounted to \$5,228,836. The taxation in 1888 was 31 mills, on a one-third valuation. The total expended

on city improvements in 1888 was \$4,394,413; and 974 new buildings were erected. Fifteen miles of streets are paved with cedar blocks, and there are 26 miles of cable, motor, and horse-car lines. Four daily and nine weekly newspapers are published. The total number of school-children enrolled is 8,000. The churches number 43. The Young Men's Christian Association has a handsome building. The water works are of the Holly-Gaskell system, with capacity of 4,000,000 gallons a day. The Floyd and Big Sioux rivers, on two sides of the city, afford unlimited water supply. There are 22 miles of sewers, and a paid fire department. Among the notable buildings are the Grand Opera House, court-house, high school, and Iowa Savings Bank. Two large hotels cost respectively \$218,000 and \$150,000. In May, 1889, the Order of Railway Conductors of America selected Sioux City as the seat of a building for their headquarters, to cost \$250,000. The manufacturing interests include an immense linseed-oil mill, using 2,100 bushels a day, and turning out yearly 1,300,000 gallons of oil and 10,000 tons of oil-cake. Seven twelfths of all the flaxseed raised in the United States is grown within 125 miles of the city. Pottery works have been established, and employ over 100 men. Glass sand of pure quality abounds within the city limits. There are flour and oatmeal mills; foundries; machine shops; brick and tile, plow, vinegar and pickling, and soap works; and other industries.

South Pittsburg, a city of Marion County, Tenn.; population in 1889, about five thousand. Ten years ago a person on the top of the adjacent mountain, looking downward a thousand feet upon the site of the present city of South Pittsburg, would have seen an unusually handsome plantation. Four years ago, he would have seen a village of 1,200 people, nestled between two high mountains, all happy and well-housed, but dependent upon two blast furnaces for their daily bread. This little town has the advantage of being on Tennessee river, near what is known as "the great bend," and the only outlet of the Sequatchie valley, which teems with coal and iron ore and with vegetable and forest products. A company purchased the town in October, 1886, and out of such a beginning has grown an incorporated city, the most important station on the Louisville and Nashville line between Nashville and Chattanooga. From open fields have risen block after block of handsome buildings and hundreds of good homes. Three blast furnaces now employ 700 men and pay out \$22,000 monthly in wages. There are also a brick and terra-cotta company, and a second yard making drain-pipe on a large scale; a stove factory whose roof covers an acre of ground; several saw and planing mills; a tool-making shop, etc.

Spokane Falls, a city of Spokane County, Wash.; population in 1889 about 20,000. In the early part of the present century a post for trading with the Indians was established at the great falls in Spokane (or Spokan) river, which forms the outlet of Lake Cœur d'Alène, and flows thence northwardly into the Columbia. The river, which is about 60 yards wide at this point (28 miles below the lake), is here precipitated down a series of abrupt ledges, descending with tumultuous and beautiful cas-

cares 150 feet in the space of half a mile. The upper levels of the stream are even with the surface of the valley that rises gently into the undulations of the grassy plains that overspread all that part of the State and the neighboring border of Idaho; but below the falls the river pursues its way through a series of deep and picturesque ravines. To the Indians the place was a favorite resort for camping and fishing, and hence it was an eligible point for a trading fort. As soon as the frontier of emigration was extended to that region, however, the water power afforded by these falls led to the planting of a settlement there, and forecast the growth of an important center of civilization. It became the judicial seat of Spokane County, and was an objective point for the Northern Pacific Railroad, which reached it from the west in 1881. Two years later (September, 1883), the through line from St. Paul to Portland, Ore., was completed. The town had then become an incorporated city of two or three thousand people, largely from California and Oregon, but also including many Eastern men, and it was provided with considerable capital. The railroad company chose to put its shops for the local division at a new town a few miles away, but some small mills were beginning, and an active business was conducted in supplying the wants of nearly all the region north of Snake and east of Columbia river, which was then filling up with farmers from the Pacific coast, immigrants (from Scandinavia mainly), and, to some extent, with Eastern people. In the immediate vicinity of the Falls the surface is elevated and rocky, but after a few miles undulating and treeless plains of the richest wheat-producing land begin, and these extend hundreds of miles north, west, and south, supporting already a large population of prosperous farmers, who raise enormous crops without irrigation and without the danger of early frost which menaces agriculture in the same high latitude east of the Rocky Mountains. Useful minerals—gold, silver, copper, and mica in particular—had been prospected long ago at various points along the upper Columbia, in the Kootenay region northward, in the lofty hills that extend southward along the Idaho line, and in the rugged heights of the bold and wooded ranges of the Cœur d'Alène mountains eastward. In the Cœur d'Alène range the development of mineral wealth has been rapid and of the greatest profit to Spokane Falls. The finding of some gold placers giving nuggets, in 1884, caused a rush into these mountains, where there were then no roads and no conveniences for comfortable existence, while the climate was severe. Expectations were exaggerated, and untold disappointment and personal suffering followed; but gold and silver were really there, and, after men and corporations with capital had instituted systematic methods of mining and ore-treatment, an immense yield began. A region measuring 60 by 100 miles, drained by Cœur d'Alène river, seems filled with auriferous quartz and ores of silver occurring in slate and quartzite, the former rock imbedding the gold ledges and the latter yielding ores of silver. Through this is now scattered an active mining population, and the yield is large and continuous. Excellent roads run to all the larger mining properties,

and the principal centers are connected by rail with Spokane Falls. Next in importance are the two mineral districts northward. One of these centers at Fort Colville; the other, known as the Okanogan district, lies in the "big bend" of the Columbia, and is reached by the railroad to Wilbur, where the river is navigable. There is also a railroad to the Colville valley and mines, and an extension of this (or perhaps a new line) is likely to be made northward to Revelstoke, British Columbia, where the Canadian Pacific Railway crosses Columbia river. Southward from Spokane Falls extends the Spokane and Palouse Railroad, passing through the rich farming country between Clarke's Fork and Snake river, known as the Palouse country. The city of Spokane Falls has long been doing a large wholesale business in every kind of merchandise. The presence of the water power (estimated as equal to 114,000 horse-power, at the lowest stage) long ago induced the planting of manufactories here. Several roller flouring mills are in operation, with others, making oatmeal, buckwheat, and other farinaceous preparations; saw mills and wood-working establishments; foundries and machine shops; a pottery, soap works, and many minor factories. The town occupies a good site on gravelly soil, which makes the best of natural roads, and drainage is easy. The climate is moderate and healthful, especially for those who are benefited by a dry and somewhat rarefied air. The city is well laid out, and much attention has been paid to public improvements. A system of water-works, electric illumination, and telephonic communication with all the surrounding mining communities are among these. A cable tramway, two electric street railroads, and two horse-car lines serve the needs of local transportation there. Besides the public schools two colleges are sustained, one under the care of the Methodist Episcopal Church, and the other Roman Catholic (Jesuit). Nearly all denominations have good churches. Two daily newspapers and a weekly mining journal are published. The buildings of the town were mainly of wood, and, in the summer of 1889, a large part of the business portion was swept away by fire. Rebuilding began immediately, and the new architecture promises to be of brick and stone, and in good style. Admirable sites for dwelling places are numerous on both sides of the river, where rocky bluffs overlook the center of the city, and costly and ornamental residences have been constructed, among a general average of comfortable and pretty dwellings.

Summerside, the capital of Prince County, Prince Edward Island, on Bedeque Bay, in latitude 46° 23' 50" north, longitude 63° 47' 32" west. It is 40 miles west from Charlottetown, and 39 miles northeast from Point Du Chene on the main land. Its population in 1881 was 2,853; in 1889 it was estimated at more than 4,000. The assessed valuation (about 50 per cent. of real value) is \$1,179,960; revenue, \$9,816.85. There are 7 churches, a high school and two district schools, with 11 teachers and more than 700 pupils, St. Mary's Academy (Roman Catholic) with 4 teachers and 90 pupils, 4 weekly newspapers, and 3 banks. During the fiscal year ending June 30, 1889, 17 vessels, aggregating 3,103 tonnage, arrived from foreign ports; and 712 vessels,

aggregating 169,753 tonnage, arrived in the coastwise trade. Of vessels that cleared, 26, of 3,128 tonnage, were for foreign ports, and 727, of 188,724 tonnage, in coastwise trade. For the same year the customs reports show: Imports, \$100,211.46; consumption, \$103,483.46; duties, \$19,415.51; exports, \$269,634. Including inter-provincial trade the imports are much greater, and the value of the exports for the same year exceeded \$1,000,000. More than 1,700 horses and 35,000 barrels of oysters were exported last year. During the seven months of navigation, two steamers make daily (excepting Sundays) trips to Point Du Chene and return. Summerside is a railway, telegraph, and telephone station.

Tacoma, the county seat of Pierce County, Wash., at the head of navigation of Puget Sound, in the northwestern part of the State. In 1872 Tacoma was selected as the western terminus of the Northern Pacific Railroad. At that date it was the site of a saw mill and a few log cabins. The population in 1875 was 300; in 1886, 6,907; in 1889, about 25,000. It has a fine harbor—Commencement Bay—and is built on a succession of terraces rising 300 feet. Valuable tide lands lie along the front of the city. Along Puget Sound are 200,000 acres of these lands, 30,000 of which have been reclaimed, yielding in many instances enormous crops of grains and grasses. Tacoma is a ship-building center, and owns more shipping than any other port on the Pacific coast, with the exception of San Francisco. It is also only second to that city in the export of wheat. Lumber is shipped from the timber belt west of the Cascade mountains. The daily cut of the Washington Mills is 3,000,000 feet, and the estimated export of the sound for 1889 is 500,000,000, of which Tacoma's share is one third. There are three mills for the manufacture of lumber at Tacoma, one of which is the largest on the sound. Coal is brought by rail 30 miles, and shipped to San Francisco. Wheat is stored in enormous warehouses. Branch lines of railroad run to Seattle, 41 miles, and to Portland, Ore., 145 miles. Weekly connection is had with San Francisco by ocean steamships, and there are daily steamers to Seattle, Port Townsend, Victoria, Olympia, and other sound ports. Manufactures are being developed, and the wholesale trade is considerable. As Tacoma is the headquarters of the western divisions of the Northern Pacific Railroad, there are extensive car and repair shops. The city has 40 miles of graded streets. There are two steam motors and a horse-car line. Gas and electric lights are in use and water works have been established. Three daily papers are published, and there are six banks. The city is well drained and healthy. An Episcopal seminary for girls, endowed by C. B. Wright, of Philadelphia, ex-President of the Northern Pacific Railroad, is named the "Anna Wright," in honor of his deceased daughter. The same gentleman erected here a fine Episcopal church in memory of his wife. There are 13 other churches. The scenery around Tacoma is unusually fine. Mount Tacoma, 40 miles distant, 14,444 feet high, visible from every part of the city, has 10,000 feet covered with snow fields and glaciers. The name Tacoma is found for the first time in Theodore Winthrop's book "Canoe and Saddle," published in November, 1862.

Walla Walla, the county seat of Walla Walla County in the southeastern part of Washington; population in 1889, about 5,000. It is in the center of a fertile valley, one of the richest grain, fruit-growing, and grazing districts of the West, bordered to the south and east by mountains, and on the west and north by the Columbia and Snake rivers. The average rainfall from September to June, the beginning of the dry season, is seventeen inches. The average yield of wheat is thirty bushels to the acre, and proportionate crops of oats and barley. Corn is raised, and from two to four crops of alfalfa; while clover, timothy, and native grasses are luxuriant. The yield of wool for the county is 200,000 pounds a year. There are gas and electric lights, three daily newspapers, an opera house, eleven churches, and good public schools. Whitman College is one of the oldest educational institutions in the State. There is a Catholic institution also. The Oregon & Washington Railroad has 128 miles of road in operation, having its main office at Walla Walla. The drainage fall of the land is seventy feet to the mile. There are 145 business enterprises, paying an aggregate license, with saloons, of \$10,642, and 1 bank. The Penitentiary has been located here. Outside the city is a United States Army post of five cavalry companies. It is a ride of one day from Portland, Ore., and of fifty hours from San Francisco. There is good water power, not yet utilized.

Watertown, the county seat of Codington County, South Dakota, in the eastern part of the State, at the headwaters of the Sioux valley; population about 6,000. It has seven railroad lines, exclusive of one local; an eighth has been surveyed, and two others are projected and have companies organized. The Manitoba system, the fifth trunk line, reached Watertown in 1886. Owing to railroad facilities, it is a jobbing as well as a manufacturing center. It has a large cold-storage warehouse, and is the distributing point for the Standard Oil Company, and for various lines of manufactures. Codington County contains twenty townships (460,800 acres) two of which lie within the Sisseton Indian Reservation, soon to be opened to settlement. All Government lands in the county have been entered. The soil is a dark, rich, sandy loam, with clay subsoil, producing all Northern crops. Since 1878 there has never been a crop failure. The county is dotted with lakes. Native grasses afford facilities for stock-raising, which is a leading industry. In addition to American settlers, there are Germans, Scotch, and Scandinavians. The total debt of the county is \$25,000. Exclusive of Watertown, there are fifty-five schools. The assessed valuation of property, real and personal, for Watertown, in 1887 was \$798,969: its actual value, nearly \$2,500,000. In 1888 the assessed value was \$968,905; actual, \$3,000,000. The total tax for city, school, county, and Territory, for 1888, was $3\frac{1}{2}$ per cent. on the assessed value. The school tax is equal to one third the sum of all other taxes, but when the school lands of the Government shall pass to the State, the annual revenue resulting from their sale will virtually remove this burden. A section of these lands (640 acres) lies within the corporate limits of Watertown. A high school is building, to cost

\$30,000, and there are two ward schools, a commercial college, and a school of telegraphy. The churches are Baptist, Congregational, Disciple, Episcopal, Methodist Episcopal, Roman Catholic, and Lutheran; the German Lutherans and Adventists are as yet unprovided with places of worship. The church property is valued at \$50,000. There are six banks, with aggregate capital of \$310,000, a mortgage and trust, a loan and trust, and equitable investment companies. The capital of these last aggregates \$390,000. Two building and loan associations, with joint capital of \$500,000, have done much to improve and beautify the county. Electric lights are in use, and there is an electric line of cars, affording accommodation on streets and avenues and running out to Kampeska lake, a beautiful sheet covering eighteen square miles, which is a summer resort. There is also a steam-motor line. Ice-boating on Lake Pelican is a winter amusement. There are four parks. Water is pumped from Lake Kampeska three and a half miles to a standpipe on the high ground of the north-western front of the city. The top of the pipe is 148 feet above the level of the business portion, and the pressure is sufficient to force streams above the highest blocks. There is a good fire department, with chemical engine. One daily and five weekly newspapers are issued. Watertown has about a dozen manufacturing plants, including a flouring mill turning out 350 barrels a day, a foundry and iron works, a factory of plows and harrows, one of wagons and carriages, a tannery, a wood-working establishment, a broom factory, and bottling works. A city hall is building, at a cost of \$30,000. The finest building is that of the Dakota Loan and Trust Company, of Dakota granite, with carved stone trimmings, which cost \$75,000. The court-house is one of the first public edifices erected, costing \$25,000 exclusive of grounds and furnishings. There is an opera house (cost, \$30,000), and a hall capable of seating 1,500 persons. The armory hall of the Dakota National Guards was built for \$10,000. The Arcade Hotel, five stories high, with all modern conveniences, cost \$75,000. Most of the buildings in the city are of native brick and stone. The altitude of Watertown is 1,735 feet above the level of the sea.

Yarmouth, the principal town in the county of Yarmouth, province of Nova Scotia, Canada; population by the last census (1881), 6,280; present population estimated at 9,000. It is 240 miles from Boston by steamer, and 215 miles from Halifax by rail. Formerly the chief business was shipping, and it was claimed that Yarmouth owned more tons of shipping per head of population than any other port in the world. In 1879 there were owned at this port 297 vessels, with a tonnage of 153,515. In 1889 there were on the registry books at Yarmouth 340 vessels, with a tonnage of 109,396. Manufactures of various kinds are largely carried on, and the town has made great progress during the past five years. During that time about four hundred new buildings, some of them handsome brick blocks, have been put up, and \$2,500,000 has been invested in various industries, this investment being almost entirely local capital. Among the industries are machine shops, iron-foundries, a brass-foundry, galvanized-iron

works, a woolen mill, a cotton-duck and yarn mill, wood-working factories, planing mills, an organ factory, a hosiery and underwear factory, a lobster cannery, and prepared-fish works. Steamers are built and equipped, and fire-engines, and all kinds of steam-engines, boilers, and pumps are made here. The town has two local banks and an agency of the Bank of Nova Scotia. There are two papers, a weekly and a semi-weekly. The town is lighted by electricity, and there are two gas companies. A company has been formed for putting in an electric street-car service. Local telephone companies have communication with all parts of the province. The Western Counties Railway, a local enterprise, connects Yarmouth with Digby, 67 miles, whence there is connection by steamers with St. John, N. B., and Annapolis, where the railway connects with Halifax. This railway will next year connect at Annapolis with the railway system of the continent. The Yarmouth Steamship Company runs a fourteen-knot steel steamer twice a week between Yarmouth and Boston, and is now having a larger seventeen-knot boat built on the Clyde, for the same route in the summer of 1890, when four round trips a week will be made. This company also runs a side-wheel steamer line between Yarmouth and Halifax, calling at intermediate ports, and a line between Yarmouth and St. John, N. B. Yarmouth is a port for fishing vessels and fish outfitting, and a trade center for western Nova Scotia. The latest official statistics (1888) place the year's fishing receipts at \$760,187.

The following table will show the growth of trade:

YEARS.	Exports.	Imports.	Duty paid.
1885	\$627,909	\$515,362	\$80,782
1886	509,806	487,721	85,038
1887	459,869	476,391	75,900
1888	668,624	518,826	80,863
1889	767,684	644,055	95,402

The arrivals and departures of shipping for 1889 were (foreign ports) 670 vessels, 182,286 tons; (coastwise) 1933 vessels, 204,010 tons. The official valuation of taxable property in the town of Yarmouth in 1889 was \$3,842,922. The town has no funded debt, but is responsible for a portion of a municipal loan that was raised for building the Western Counties Railway.

Yonkers, a city of Westchester County, N. Y., adjoining New York city on the north. The business center, at Getty Square, is 18 miles from the Battery. The population in 1880 was 18,892; in 1889 it was estimated at 30,000. The manufactures embrace carpets, hats, plows, elevators, hat machinery, morocco, wool and yarn, wool extract, pickles, glue, sugar, plumbers' tools, shirts, carriages, rubber goods, and castings. Steam power is used in the large works, but the Nepperhan river supplies water power for many smaller shops and mills. Millions of capital and thousands of operatives are employed in Yonkers industries. The city is well organized and governed. Its judicial, police, fire, water, health, and other departments are in general very efficient. The public water works are upon a scale adapted to the growing needs of the place. A large trunk sewer was built

in 1887. The health of the city is excellent. The educational system embraces a high school and 7 grammar and primary schools. Two daily and 2 weekly newspapers are published. There are 4 Episcopal churches, 5 Methodist, 1 Reformed (Dutch), 2 Roman Catholic, 2 Baptist, 3 Presbyterian, 1 German Lutheran, and 1 Unitarian. Horse railroads were introduced in 1887. The Hudson river boats and the New York Central trains supply means of travel and transportation. The latest arrangement for accommodation is the elevated railroad. The streets are lighted by electricity. The oldest building in Yonkers is the Manor House (now the City Hall), which was originally the residence of the first Frederick Philipse, proprietor of the Manor of Philipsburgh. On Oct. 18, 1882, the city celebrated with appropriate ceremonies the bi-centennial of the erection of this building.

COLLINS, WILLIAM WILKIE, an English novelist and dramatist, born in London, Jan. 1, 1824; died there, Sept. 23, 1889. His father, William Collins, R. A., was a noted painter of rural scenes, and his mother was a sister of Miss Carpenter, a famous portrait painter. Wilkie was educated first at Highbury, and later his



WILLIAM WILKIE COLLINS.

studies were continued in Italy, where his parents lived for two years. On his return to England, in 1839, his proficiency in French and Italian provoked the jealousy of his schoolmates, who persecuted him as a foreigner, but he fortunately secured the friendship of the strongest boy in school, who engaged to defend him from ill-treatment if Collins would tell him stories. After leaving school he was articled for four years to a London firm engaged in the tea trade, but as he showed no aptitude for commercial pursuits he was entered as a student at Lincoln's Inn, where he remained until the death of his father in 1847.

It does not appear that he had yet shown himself better fitted for law than for commerce, but in 1848 he published a life of his father, which showed very conclusively that literature was the field in which success was easiest for him. After this his whole time was given to literary pursuits, and in 1850 appeared his second book, "Antonina, or the Fall of Rome; a Romance of the Fifth Century." It was a work to which he

had given much time and thought, and though it was only a moderate success it nevertheless brought his name to the notice of his contemporaries and procured for him the friendship of Charles Dickens, who shortly afterward invited him to become a contributor to "Household Words." In the years that immediately followed Mr. Collins published in this periodical several stories which showed an advance in literary workmanship, but it was not until 1860 that he could claim to be ranked among contemporary masters of fiction. In that year Dickens's new magazine, "All the Year Round," contained Mr. Collins's serial "The Woman in White," which, after the lapse of thirty years, remains as popular as when first issued. Its success in England was almost instantaneous, and it spread rapidly to America and to the Continent, where the book was translated into several languages. It may be safely said that, up to that time, no novel had been published that showed such marvelous arrangement of incident, such successful hold upon the central idea, or such skill in fixing the reader's interest from the first page to the last as "The Woman in White." The book exhibits all its author's peculiar excellencies—excellencies that rise to the rank of genius—and has been surpassed, if surpassed at all, only by Mr. Collins himself in "The Moonstone." That he lacked the ability to delineate successfully the finer lines of character, and that his pages are deficient in humor, must be conceded. The patient realism of Jane Austen and the ethical purpose of George Eliot are as foreign to his work as the rugged strength of George Meredith or the perfect grace of style of Walter Pater. But in his own line, although he had many imitators, he has had no equal. As a master of ingenious construction, he stands alone among novelists of any age or country. In 1866 Mr. Collins's "Armada"—a novel for which he received five thousand guineas before it was even begun—was printed in "The Cornhill Magazine." It is a powerful story, and in point of literary style is much superior to "The Woman in White," but it has never been one of its author's popular efforts.

In the winter of 1873-'74 Mr. Collins visited America, and repeatedly read in public two of his short stories, "The Frozen Deep" and "The Dream Woman." He was everywhere received with kindness, and even with enthusiasm, and he always retained a most grateful appreciation of his American visit.

His career as a dramatist began with "The Lighthouse," produced privately at Camden House, in Kensington, and afterward at the Olympic Theatre; and in 1857 his drama "The Frozen Deep" was acted at Tavistock House, the cast including Dickens among the other amateurs. In September, 1877, his own dramatic version of "The Moonstone" was produced at the Olympic Theatre, and in the same place dramatizations of "The New Magdalen" and "The Woman in White" were also produced; and at the Adelphi a dramatic version of his "Man and Wife." All these plays achieved a marked success, both in England and America, "The New Magdalen" being perhaps the most popular. His original play, "Rank and Riches," acted at the Adelphi on June 9, 1883, was a complete failure.

Mr. Collins was a man of not quite medium height, with stooping shoulders, large eyes, and a round, pleasant face. In his later years his abundant hair and heavy beard were nearly white. He never married, and the greater part of his life was spent in London. Nearly all his works were published serially, a form of publication for which their method of construction most admirably fitted them. The complete list is as follows: "Memoirs of William Collins, R. A." (1848); "Antonina, or the Fall of Rome" (1850); "Rambles beyond Railways, or Notes in Cornwall, taken Afoot" (1851); "Basil, a Story of Modern Life" (1852); "Mr. Wray's Cash Box, or the Mask and the Mystery—a Christmas Sketch" (1852); "Hide and Seek" (1854); "After Dark" (1856); "The Dead Secret" (1857); "The Queen of Hearts" (1859); "The Woman in White" (1860); "No Name" (1862); "My Miscellanies" (1863); "Armada" (1866); "The Moonstone" (1868); "Man and Wife" (1870); "Poor Miss Finch" (1872); "Miss or Mrs? and other Stories in Outline" (1873); "The New Magdalen" (1873); "The Law and the Lady" (1875); "Agnes Warlock" (1875); "Two Destinies" (1876); "The Haunted Hotel" (1878); "The Fallen Leaves" (1879); "A Rogue's Life, from his Birth to his Marriage" (1879); "Jezebel's Daughter" (1880); "The Black Robe" (1881); "Heart and Science" (1883); "I Say No" (1884); "The Evil Genius" (1886); "The Guilty River" (1886); "The Legacy of Cain" (1888); and "Blind Love" (1889). The last named was being published serially at the time of his death in the "Illustrated London News," and, being left unfinished, was completed by Walter Besant from the author's notes. "No Thoroughfare," the joint production of Mr. Dickens and Mr. Collins, appeared as a Christmas story in 1867. The best American edition of his works is the illustrated library edition, in seventeen volumes (New York, Harper Brothers).

COLOMBIA, an independent republic of South America. (For details relating to area, territorial divisions, and population see "Annual Cyclopædia" for 1886 and 1887.)

Government.—The President is Dr. Carlos Holguin. His Cabinet is composed of the following ministers: Government, Don Domingo Ospina Camacho; Foreign Affairs, Don Vicente Restrepo; Finance, Don Felipe Paul; War, Gen. Antonio B. Cuervo; Education, Don Jesus Casas Rojas; Secretary of the Treasury, Don Carlos Martinez Silva; and Public Works, Don Leonardo Canal. The United States Minister at Bogotá is Dabney H. Maury; the Colombian Minister at Washington is Don José Marcelino Hurtado. The Colombian Consul at New York is Don Climaco Calderon; the American Consul-General at Bogotá is John G. Walker.

Finances.—In July, 1889, a contract was arranged at Bogotá between the Minister for Foreign Affairs, Señor Restrepo, then temporarily holding the portfolio of the Secretary of the Treasury, and Charles O'Leary, special commissioner of the foreign bondholders in London, for the conversion of the foreign debt of Colombia. The debt as it now stands amounts to £1,913,500 principal, and £964,703 interest; total, £2,878,203. In payment of this sum, £1,000, £500, and £100 bonds will be issued, bearing in-

terest from Jan 1, 1890, the coupons up to 20 at the rate of 3 per cent. per annum, and from the 21st at 4 per cent., payable Jan. 1 and July 1. The Government will be entitled at any time to buy up the bonds at market rates, and to redeem them at 70 per cent. of their value up to Dec. 31, 1894, and subsequently at 80 per cent. The paper money in circulation on Aug. 1, 1889, had been reduced to \$12,000,000. The revenue collected during the biennial period of 1887-'88 was \$20,890,000; the expenditures, \$20,-893,645.

Army.—The strength of the Federal army in 1889 was 6,500 men. A contingent of 1 per cent. of the population has to be furnished in the event of war, by each of the nine states, whose joint population is estimated at 4,000,000.

Commerce.—The imports in 1888 reached \$24,000,000; the exports, \$15,000,000. The stoppage of work on the Isthmus, and consequent emigration of canal hands, has put an end to the large shipment of cattle from the north coast to Colon; this trade is now being directed to Curaçoa.

The United States trade with Colombia in two years has been:

CALENDAR YEAR.	Import.	Domestic export to Colombia.
1887.....	\$3,795,220	\$5,557,062
1888.....	4,612,202	4,806,961

Railroads.—On Feb. 26, 1889, the Minister of Public Works, Don Leonardo Canal, made a contract with Don Juan María Tonnegra for the construction and working of a railway to connect Bogotá with Zipaquirá, under a Government subsidy of \$15,000 for each mile in operation. In June the same official made a contract with Count Gonseneourt for the construction and running of a railroad between the port of Buenaventura on the Pacific and the city of Manizales. Simultaneously he contracted with Don Pedro M. Corena for the building of a tramway in the city of Panama. On July 20 the President of the republic solemnly opened the Sabana Railroad, which connects Bogotá with an upland region in the Andes called the Sabana, twenty-four miles.

Navigation.—Early in January, 1889, the steamer "Atrato" arrived at Carthagena from New York, intended for the navigation of the Atrato, and subsequently other steamers were placed on the river to connect Carthagena with the province of Chocó, considered one of the most auriferous regions of the republic. Steam navigation was also begun on the Sinú river.

A New Orleans-Colombian Steamship Company, newly founded, has applied for a concession to establish a line of steamers between New Orleans, Colón, Carthagena, Sabanilla, Santa Marta, and Rio Hacha, under a subsidy from the Colombian Government at the rate of \$2,500 for each round trip, and J. M. Ceballos & Co., New York, have taken preliminary steps to place steamers on a line between the latter port and Carthagena.

The Panama Canal.—The Panama Canal enterprise, and its representative, the Panama Canal Company, were unable to resume operations in 1889. The disastrous collapse of the

old company in December, 1888, inflicted heavy and wide-spread losses in France, especially among small capitalists. On Jan. 26 a meeting of holders of Panama Canal shares was held in Paris. M. de Lesseps was present, and met with a hearty reception, but no offers of financial assistance to the Canal Company were made. The chief engineer of the canal estimated that the total outlay still necessary to complete it would be 450,000,000 francs.

Improvements at the Capital.—Bogotá in 1889 completed water works and a large national theatre, built under the superintendence and according to the plans of the Italian architect, Pedro Cantini.

Gold Mining.—During the summer of 1889 gold mining on the Isthmus again attracted attention. The "Panama Gazette" of Aug. 14 contained a long list of mines ceded by the Government to natives and foreigners.

COLORADO, a Western State, admitted to the Union in 1876; area, 103,925 square miles; population, according to the last decennial census (1880), 194,327; capital, Denver.

Government.—The following were the State officers during the year: Governor, Job A. Cooper, Republican; Lieutenant-Governor, William G. Smith; Secretary of State, James Rice; Treasurer, W. H. Brisbane; Auditor, Louis B. Swanbeck; Attorney-General, Samuel W. Jones; Superintendent of Public Instruction, Fred Diek; Commissioner of Immigration, F. J. V. Skiff; State Engineer, James P. Maxwell; Chief Justice of the Supreme Court, Joseph C. Helm; Associate Justices, Charles D. Hayt and Victor A. Elliot.

Finances.—The following statement shows the condition of the treasury for the two years ending Nov. 30, 1888:

Receipts from all sources.....	\$2,280,179 85
Cash in treasury, Nov. 30, 1886.....	481,885 64
State warrants in treasury, Nov. 30, 1886.....	352,617 08
Total.....	\$3,114,682 57
Disbursements.....	\$1,721,880 31
State warrants in treasury, Nov. 30, 1888.....	575,047 92
Cash in treasury, Nov. 30, 1888...	817,804 84
	\$3,114,682 57

At an election in 1883 the people authorized the issue of bonds to the amount of \$300,000, to aid in constructing the capitol building, and by a similar vote in 1889 they assented to a further issue of \$250,000 in bonds. In addition to this debt, there is an unfunded State indebtedness, which on Nov. 30, 1888, aggregated \$952,554.41, and consisted of outstanding warrants, drawn by direction of the Legislature in its several appropriations against the General Revenue fund, and bearing interest at 6 per cent.; certificates of indebtedness, issued by direction of the Governor and Attorney-General, bearing 6 per cent. interest, and loco-weed certificates, unredeemed.

In detail this debt is as follows:

Interest-bearing warrants.....	\$839,824 17
Certificates of indebtedness.....	86,879 10
Loco-weed certificates.....	81,863 00
Total.....	\$958,066 27
Less cash available.....	5,511 86
State debt, Nov. 30, 1888.....	\$952,554 41

The total revenue available for redeeming these warrants and certificates at that time was

\$435,160.38, leaving a net unfunded debt in excess of revenue of \$517,394.03. In November, 1886, according to the Auditor's report of that date, the net unfunded debt in excess of revenue was only \$110,379.30, but this estimate proved to be too low. Soon after the report was issued, the State Supreme Court decided that, under section 3 of Article XI of the State Constitution, the total tax for all purposes could not exceed 4 mills on the dollar. A rate of 4 mills on the dollar had heretofore been levied for the general fund alone, the total levy being $5\frac{1}{3}$ mills, and this rate had been the basis of the figures given by the Auditor. The decision changed the rate for the general fund from 4 to $2\frac{1}{3}$ mills, and reduced the item of "taxes for 1886," as an accepted asset of the State, from \$497,078.94 to \$302,389.63. By direction of the Attorney-General, credits were given the several counties amounting to \$194,689.21. The effect of this was to add a like amount to the net debt of the State and to make a large part of the taxes delinquent Nov. 30, 1886, and other years of no value. The opinion was rendered as to the levy of 1886, but for 1883-'84-'85 a 4-mill tax for the general revenue alone had been collected, and in the light of this opinion had all been excessive.

The net unfunded debt on Nov. 30, 1886, was in consequence, increased to \$338,422.99. In comparison with the net debt of Nov. 30, 1888, there has been a total increase of \$178,971.44 in two years. This was due to the issue of certificates of indebtedness during the two years amounting to \$85,891.50, and to the more noteworthy fact that the total receipts to the general revenue funds in 1887-'88 were \$721,051.11 as against \$900,661.11 during 1885-'86. Thus, while assessed values increased largely, the change in rate of taxation resulted in a reduction of the general revenue for 1887 and 1888 below that collected for 1885 and 1886, while there had been no reduction in appropriations and expenditures.

The decision of the State Supreme Court, rendered this year, which declares all appropriations made by the Legislature in excess of the revenue designed to pay them to be illegal, would seem to cast doubt upon the validity of many of the outstanding warrants reckoned as a part of the above-named debt, especially such as have been drawn to pay such excessive appropriations.

Legislative Session.—The seventh General Assembly convened at Denver on Jan. 2, and remained in session three months, adjourning on April 1. The choice of a United States Senator to succeed Hon. Thomas M. Bowen first occupied attention. A caucus of Republican members selected as its candidate Edward O. Wolcott, the vote standing 45 for Wolcott to 15 for Senator Bowen. The Democrats nominated Charles S. Thomas. In the Senate, on Jan. 15, Wolcott received 19 votes, and Thomas 6; in the House Wolcott had 43 votes, and Thomas 6. The former was subsequently elected at a joint session of both Houses. A large number of important measures were passed during the session. Two amendments to the State Constitution were proposed, one giving the General Assembly power, by a two-third vote of both

branches, to provide for one or more additional judges of the Supreme Court, until the number of judges should reach six; the other giving the Assembly power, by a similar vote, to increase the salaries of supreme and district judges to any sum not exceeding \$7,000 per annum. Another act provides for the establishment of a Bureau of Immigration and Statistics, the chief officer of which shall be appointed by the Governor, and shall be called the Commissioner of Immigration. His duties are to collect industrial and other statistics regarding the State, to publish such as he shall deem useful to encourage immigration, to answer all inquiries from and otherwise to assist intending settlers, and to provide suitable exhibits and proper representation of the State at important industrial exhibitions wherever held. In May the Governor appointed F. J. V. Skiff to be commissioner under this act.

Much time was devoted to the discussion of a high-license bill, which was finally passed. The act fixes the annual license fee for retail dealers at not less than \$600 in cities, \$500 in incorporated towns, and 300 in counties outside of cities or towns. The fee for dealers in malt liquors exclusively may be reduced to half the above sums, in the discretion of the local authorities. A bond to observe the law must be given by all licensees. The anti-alien law of 1887 was so modified that non-resident aliens may hold agricultural, arid, or range lands to an extent not exceeding 2,000 acres. They may hold real estate in any incorporated town or city, and mines or mining property without limit.

A compulsory school law was passed, requiring that children between the ages of eight and fourteen years shall be sent to a public or private school at least twelve weeks in each year, eight of which shall be consecutive. Children living more than two miles from a public school, or having otherwise been instructed in the required public-school branches, are excepted from the operation of the law. Whenever any person is unable to send his child to school for want of suitable clothing, the local school authorities are directed to furnish such child with the necessary clothing at the expense of the school fund. A fine is imposed upon parents and others who disobey the law. Persons or corporations are also subject to a fine for employing any child under fourteen years of age in any business whatever during school hours, in any school day of the public schools, unless such child shall have been otherwise regularly instructed twelve weeks in each year and eight weeks consecutively, and a certificate to that effect has been delivered to his employer.

Another act provides that executions shall take place only at the Penitentiary, and shall be secret and private. The judge shall sentence the prisoner to be executed at any time within a certain week, the precise day and hour to be fixed by the warden, who shall communicate it only to the necessary officials and to six invited witnesses, who in turn are to keep the secret. Newspapers are forbidden to publish details of executions. Violators of any portion of this law are subject to fine or imprisonment, or both.

An act concerning conspiracy provides that "it shall not be unlawful for any two or more persons to unite, combine, or agree in any man-

ner to advise or encourage, by peaceable means, any person or persons to enter into any combination in relation to entering into or remaining in the employment of any person, persons, or corporation, or in relation to the amount of wages or compensation to be paid for labor, or for the purpose of regulating the hours of labor, or for the procuring of fair and just treatment from employers, or for the purpose of aiding and protecting their welfare and interests in any other manner not in violation of the Constitution of the State and its laws; provided, that this act shall not be so construed as to permit two or more persons, by threats or by display of force, to prevent or intimidate any other person from continuing in such employment as he may see fit, or to boycott or intimidate any employer of labor."

In the interest of irrigation, a commission was established to submit to the next General Assembly a complete revision and code of law concerning the management and distribution of the waters of the State, whether surface or subterranean. The act of 1883, establishing a Superior Court in the city of Denver, was repealed, and all cases therein were transferred to the County District Court.

A Soldiers' and Sailors' Home, to be located in the San Luis Park, was provided for, and \$40,000 appropriated to erect buildings and for its support in 1889-'90. Later in the year the site was fixed upon at Monte Vista, that township agreeing to give one hundred and sixty acres of land and to assist largely in the construction of buildings. For a State Normal School at Greeley, Weld County, \$10,000 was appropriated for building, and the same amount for furnishing and maintenance during 1890. The school is to be established only on condition that a site be given and that \$15,000 be contributed for building. The Colorado Foundling and Orphans' Home was established at Denver, and \$20,000 appropriated for buildings and maintenance for two years. A State Reformatory in Chaffee County, mentioned below, completes the list of new institutions.

Other appropriations include \$10,000 for a monument on the Capitol grounds to the Colorado volunteer soldiers; \$46,000 for completing the wings of the State Insane Asylum, and \$10,000 annually for its maintenance in 1889-'90; \$80,000 for additional buildings at the Mute and Blind Institute; \$18,000 for additions to the main building of the State Agricultural College. The sum of \$100,000 was also appropriated out of the general fund for the payment of outstanding certificates of indebtedness and accrued interest.

Other acts of the session are as follow :

Establishing the third Friday of April as "Arbor Day," and making it a holiday for the public schools.
Regulating the business of building and loan associations.

Appropriating \$20,000 for laying out and ornamenting the State Capitol grounds.

Amending the code of civil procedure.

To provide, upon application of residents, for the appointment of a county inspector of bees, to suppress and destroy foul brood and other infectious diseases of bees.

Repealing the act of 1887 establishing an abbreviated form for deeds and mortgages.

Authorizing corporations to give powers of attorney to convey real estate.

Creating a State board of dental examiners, and requiring intending dental practitioners to submit to an examination and obtain a certificate from such board.

Punishing as a misdemeanor the enticing of unmarried persons, of either sex, of good repute, under eighteen years of age, to houses of ill fame.

Assenting to the act of Congress establishing agricultural experiment stations in the various States.

Providing a penalty for trapping, netting, or ensnaring wild ducks and wild geese, and requiring the destruction of all devices used therefor.

Revising the law governing insurance companies.

Reducing the legal rate of interest allowed by law, when no rate is specified, from 10 to 8 per cent.

Repealing the act of 1887, providing for commutation of life sentences for good behavior.

Providing for a conservator to manage the property, within the State, owned by lunatics residing without the United States.

Providing for the appointment of a live-stock meat inspector in each village, town, and city, and requiring that all cattle killed for food shall be inspected and certified as healthy by an inspector, at least forty-eight hours before slaughter.

Dividing the State into three metalliferous mining districts, providing for the appointment of a metalliferous mine inspector and three deputies, and appropriating \$2,000 for the collection and distribution of meteorological data within the State.

To prohibit the running or pouring of oil or petroleum into any waters of the State.

To punish conversion of public funds by public officers charged with their keeping.

To restore public records destroyed by fire.

To punish false pretenses in obtaining registration of cattle and other animals, and to punish giving false pedigrees.

Establishing the office of inspector of steam-boilers.

To provide for the incorporation and regulation of loan and surety companies.

Dividing the State into sixty-two water districts, for irrigation.

Perfecting the mechanics' lien law.

Providing that, when judicial records are lost or destroyed, a duly certified copy of such original records may be received and filed in place thereof, and in certain cases, where such copy can not be obtained, a statement of the substance of the original may be received; also prescribing the procedure of probate judges for replacing destroyed records of the probate court. [This act was suggested by the loss of the records of Bent County by fire.]

Revising the law for the punishment of cruelty to animals.

Requiring all persons, associations, or corporations who divert water for irrigation to erect and maintain head-gates and waste-gates and suitable fastenings thereon, and, in case of failure to do so, after five days' notice, empowering the local water commissioner to provide such and to levy the expense upon such persons, associations, or corporations.

Creating the county of Baca out of a portion of Las Animas County.

Creating the county of Cheyenne out of portions of the counties of Bent and Elbert.

Creating the county of Kiowa out of a portion of the county of Bent.

Creating the county of Kit Carson out of a portion of the county of Elbert.

Creating the county of Lincoln out of portions of the counties of Elbert and Bent.

Creating the county of Montezuma out of a portion of La Plata County.

Creating the county of Morgan out of a portion of the county of Weld.

Creating the county of Otero out of a portion of the county of Bent.

Creating the county of Phillips out of a portion of the county of Logan.

Creating the county of Prowers out of a portion of the county of Bent.

Creating the county of Rio Blanco out of a portion of Garfield County.

Creating the county of Sedgwick out of a portion of Logan County.

Creating the county of Yuma out of a portion of Washington County.

The total appropriations made by the General Assembly amounted to \$2,955,223.51, a sum largely in excess of the record of former legislatures. Of this total, \$1,751,425.92 was appropriated out of the general fund of 1889 and 1890 (the remainder being drawn from special funds), but a liberal estimate by the Auditor placed the income of this fund for those years at only about \$1,200,000—more than \$500,000 below the appropriations. In view of these facts, the Governor, on Sept. 25, addressed a letter to the Supreme Court requesting its opinion as to the legality of the action of the Legislature. The decision of the court, rendered in the latter part of October, contains the following:

By section 16 of Article X of the Constitution, each and every General Assembly is inhibited in absolute and unqualified terms from making appropriations or authorizing expenditures in excess of the total tax then provided by law and applicable for such appropriation or expenditure, unless such General Assembly shall provide for levying a sufficient tax within constitutional limits to pay the same within such fiscal year. This language needs no construction: it means that the State can not be plunged into debt by unauthorized legislation. If the General Assembly pass acts making such appropriations, or authorizing expenditures in excess of constitutional limits, such acts are void; they create no indebtedness against the State, and entail no obligation, legal or moral, upon the people or upon any future General Assembly.

On the question, what specific appropriations should be singled out as being a part of the \$500,000 excess of appropriations, and as therefore being unconstitutional, the Court say:

We are of the opinion that acts of the General Assembly making the necessary appropriations to defray the expenses of the executive, legislative, and judicial departments of the State Government for each fiscal year, including interest on any valid public debt, are entitled to preference over all other appropriations from the general public revenue of the State, without reference to the date of their passage, and irrespective of emergency clauses. We do not mean, as has been claimed, that such appropriations are valid if they exceed the limit prescribed by section 16, of Article X; nor have we considered what item or items would be entitled to the preference in case such appropriations in the aggregate should be in excess of such constitutional limit.

The Court also say that, in the absence of a special decision on each particular case, the Auditor must, at his own risk, decide whether he will draw his warrant for any particular appropriation, and the Treasurer whether he will pay the warrant. In accordance with this opinion, Auditor Swanbeck examined the list of appropriations for 1889 and 1890, and cut off something more than \$500,000 made for various public purposes which, in his opinion, fall outside the lines laid down by the Supreme Court. The proposed Reformatory in Chaffee County, the Normal School at Greeley; the claim of State Agent Bennett; the extra fund for new buildings on the Agricultural College grounds, at Fort Collins; the Bureau of Immigration; and

the sum set apart to pay the expenses of the State Land Board, are among the items canceled by the Auditor, and for which he will refuse to draw warrants. The decision of the Court also affects the validity of appropriations of former legislatures made in excess of the revenue, by reason of which a large amount of unpaid warrants are now outstanding. Which of these warrants are valid and which not, depends upon the object for which they were drawn.

Legislative Expenses.—Soon after the adjournment of the General Assembly, it was charged in the public press that great frauds had been practiced upon the State in furnishing supplies for the use of that body. A comparison of the expenses of each of the seven General Assemblies for per diem and mileage, clerk-hire, rentals, furniture, stationery and printing, showed a surprising increase in the expenses of the seventh Assembly. It was specifically charged that the Secretary of State had made a contract for, and had approved a bill of \$20,478.50, for furniture for the General Assembly, while it appeared that the expenditure in 1887 for the same purpose was only \$3,306.56, and in 1885, only \$9,261.34. The above-named bill included an item of \$1,200 for storage of furniture used by the Legislature of 1887, but no furniture could be found when needed for the Legislature this year, and a new supply had to be obtained. The Secretary had also made contracts, and approved bills of \$19,989.45, for stationery supplied to members of the Legislature, a sum that would give each member a supply worth \$265 for a session of three months. A bill for printing legislative documents, amounting to \$6,000, was also far in excess of similar bills in former years. It was claimed that an unlawful agreement for private gain must have existed between the contractors and the Secretary, who made the contracts, and that the Auditor had been derelict in issuing warrants of the State in payment. The facts were laid before the grand jury of Arapahoe County, who found the bills to be excessive and fraudulent, and returned indictments against the Secretary and certain of the contractors.

The Governor, on July 27, addressed letters to Secretary of State Rice, State Treasurer Brisbane, and State Auditor Swanbeck, making particular inquiries with regard to the above-named contracts and concerning other dealings with the contractors, and calling for all official documents relating to the transactions. The Secretary of State, objecting to the tone of the Governor's letter, refused to reply until a second one, devoid of the discourteous passages of the first, was addressed to him. The replies of the accused officials were so voluminous that the Governor, on Aug. 24, called upon three citizens—Hon. R. W. Woodbury, Judge Amos Steck, and Hon. Hugh Butler—as a commission to examine the reports, to determine what they developed, and to ascertain what further action, if any, should be taken to secure a full investigation of the transactions. This commission made its report on Sept. 20, severely criticising the action of the Secretary and the Auditor. Numerous instances of absurd and excessive charges in the bills were cited. They recommended that the State officers implicated be held on their official bonds for all sums lost by the State through

their malfeasance. This report was transmitted to the Attorney-General by the Governor with a notification that he had engaged two other persons as assistant counsel to aid in the proposed legal proceedings. Late in November, the Attorney-General replied that, upon consideration, it had been deemed inexpedient to begin such proceedings at present, as it appeared that the warrants issued for the bills in question had not yet been presented to the Treasurer for payment. The latter was notified that such warrants were probably illegal and should not be paid. The criminal cases against the Secretary and the contractors were continued till January, 1890.

Valuations.—The assessed valuation of the State for 1888 is given in detail below :

PROPERTY.	Number.	Valuation.
Acres of land.....	9,348,539	\$29,896,028 50
Improvements for lands.....		11,155,210 00
Miles of railroad—value.....	3,739	31,240,662 11
Average value of merchandise.....		7,062,647 00
Capital in manufacture.....		707,541 00
Town and city lots.....		60,722,365 00
Horses.....	170,056	5,611,699 00
Mules.....	10,452	523,586 00
Asses.....	1,002	9,340 00
Cattle.....	911,939	10,292,877 00
Sheep.....	744,679	751,377 00
Swine.....	16,236	50,165 00
Goats.....	10,403	10,617 00
All other animals.....	3,967	29,541 90
Musical instruments.....	5,685	426,708 00
Clocks and watches.....	13,253	215,820 00
Jewelry and plate.....		66,308 00
Money and credits.....		2,570,057 00
Carriages and vehicles.....	23,612	880,644 00
Household property.....		781,969 00
All other property.....		2,653,990 32
Bank stock, other shares.....		1,469,260 00
Mines, $\frac{1}{2}$ gross proceeds.....		1,683,540 00
Grand total value of State.....		\$168,812,246 93

For the same year the valuation of Arapahoe County, which includes the city of Denver, was \$55,516,175. For 1889 the total assessed valuation of the State is slightly over \$194,000,000. There was a large increase in the assessed valuation of Arapahoe, El Paso, and Pueblo counties; but most of the other counties show a decrease. The assessed acreage of land in the State has increased from 4,534,938 acres in 1886 to 9,343,539 acres in 1888.

Penitentiary.—The number of prisoners Nov. 30, 1886, was 298. On Nov. 30, 1888, there were 412 inmates. The management is reported to be satisfactory. The sum of \$17,500 was appropriated by the Legislature of this year for building a new cell-house and shops, and for an electric-light plant. For maintenance of the Penitentiary during 1889-'90 the sum of \$225,000 was appropriated. Another act of this year authorises the Penitentiary commissioners to employ such convicts as they see fit in constructing irrigating-ditches, canals, reservoirs, etc.; and for that purpose to purchase the necessary tools, to acquire or take land, and to divert the water of Arkansas river. Ditches so made are to remain the property of the State, which may lease to adjoining owners the right to take water therefrom.

The Legislature also provided this year for the establishment of a State Reformatory in Chaffee County, designed to receive youthful prisoners, and persons convicted of minor offenses. It is required that the term of sentence

of such persons shall be indefinite, and at the discretion of the Reformatory officials. The site of the new institution is to be given to the State, and the sum of \$100,000 was appropriated for buildings. But, owing to a decision of the State Supreme Court (referred to above), it is doubtful if the appropriation can be used.

The State Industrial School at Golden, at the beginning of the year, cared for 139 boys and 25 girls. Provision was made by the Legislature for the erection of a new dormitory building, to cost not more than \$20,000, and for completing the present dormitory at a cost of \$5,000. For the next two years the sum of \$60,000 was appropriated to maintain the institution.

State Capitol.—The Board of Capitol Managers have been much embarrassed by the failure of the contractor. In order to place the uncompleted basement in a condition of safety, bids were invited and a contract let for \$59,750. This contract completed the foundation walls. After much deliberation, and under the advice of Attorney-General Marsh and other counsel, bids were invited for the completion of the building according to the original contract. No bid for the entire work being satisfactory, the board awarded the stone and brick work for \$700,000. Upon this contract \$62,833.78 has been paid, making a total paid to date on the capitol building of \$262,697.84. It will require \$400,000 in addition to the \$1,000,000 already appropriated to finish the building as originally designed.

The Legislature of this year passed an act providing for the levy of a tax of one-half mill in 1889 and 1890, to aid in the construction of the building. It was also enacted that the question should be submitted to the people, at the election in November, whether a bonded debt of \$250,000 should be created, in addition to the debt of \$300,000, authorized by vote of the people in 1883, the proceeds to be used in the construction of the capitol. Upon this question the people voted affirmatively.

Coal.—During 1888, 2,185,477 tons of coal were produced. Of this product 700,574 tons were shipped out of the State, mainly to points in Kansas, Texas, and Nebraska. The average value of coal on the cars at the mines was \$2.20 a ton, making the value of the State production in 1888 \$4,808,049.40. The average number of persons employed was 5,375. There have been 170,434 tons of coke made during the year.

The officers of the United States Geological Survey say that the area in Colorado where coal has been developed covers at least 1,000,000 acres. They further estimate that the entire coal-bearing area of the State is more than 26,000,000 acres, or as large as the area of England.

Militia.—The Legislature of this year made a thorough revision of the law governing the State militia. In time of peace the organized militia, known as the Colorado National Guard, was limited to 1,550 officers and men. Provision was made for holding annual encampments. The force actually organized at the beginning of this year numbered fewer than 1,000 men and was insufficiently equipped.

Wool.—This is one of the important industries of the State, there being more than 3,000 growers in the business, including about 600 who own the stock. There are in the State

nearly 2,000,000 head of sheep, and the wool production during 1888 of graded and thoroughbred sheep amounted to nearly 10,000,000 pounds of fine, fine medium, and medium wool. There has been a steady improvement in the sheep raised for ten years past. Where the Mexican then predominated there is only now and then a flock of this description.

Cattle.—The range cattle business in Colorado is gradually becoming a thing of the past as an exclusive business, because of the steady encroachment of farming settlements upon the plains. The number of cattle in the State is reported as 1,500,000 in 1888. About the same number was reported for each of the preceding five years. Five years previous to 1888 there were 1,000,000 cattle on the range, and 500,000 on the farms. Now there are 1,000,000 on the farms and 500,000 on the range. So the number has not changed, the only change being in the situation, which has brought with it a safer and more profitable business. The latest estimate of the annual revenue from cattle is \$1,000,000. During the season of 1888, 130,000 head of cattle went to Eastern markets.

Agriculture.—The total yield of the principal agricultural products, as reported by the assessors of the various counties for 1888, was as follows, in bushels: Wheat, 2,516,843; corn, 908,224; rye, 38,641; oats, 1,563,385; barley, 197,016; potatoes, 2,856,864; hay, 467,800 tons.

Mining.—An official report of the mineral output of Colorado during 1888 shows a large increase over 1887 in silver, a great proportionate gain in copper, and a healthy growth in lead production. The gold product shows a decrease. The total increase in the four metals over 1887 is \$9,204,000 in exact figures.

The following is the statement:

METALS.	1887.	1888.
Gold	\$4,850,000	\$3,758,098 46
Silver	15,662,000	24,272,949 04
Copper	34,000	203,255 61
Lead	6,800,000	7,006,691 62
Grand total	\$27,346,000	\$35,240,994 73

The State Supreme Court, in March, 1889, rendered a decision sustaining the constitutionality of the act of 1887, subjecting mining properties to taxation. The decision was made in the case of the Iron Silver Company.

Public Lands.—The filings upon public lands in Colorado during 1888 have not equaled, by nearly 1,000,000 acres, the filings of 1887. But the number of final proofs, which mean actual settlement and possession of land for homes and general purposes of utility and improvement, has increased greatly.

The following is a list of new filings made in 1888, at the various land offices, except at Glenwood Springs and Gunnison.

OFFICES.	Acres.
Denver	1,656,772 46
Pueblo	603,133
Lamar	695,760
Del Norte	288,521
Central City	20,000
Durango	62,000
Lake City	8,000
Total	3,334,186 46
Decrease from 1887	984,595 04

COMMERCE OF THE UNITED STATES.

Imports.—The value of the imports of merchandise into the United States for the year ending June 30, 1889, amounted to \$745,131,665, the highest total ever recorded. The increase has been steady for the last four years. The amount in 1888 was \$723,957,114, having increased from \$635,436,136 in 1884. The average for the four years 1886-'89 was \$699,210,123, as compared with \$667,142,028 for the previous five years, and \$492,569,674 for the five years 1876-'80. The imports of articles of food and living animals in 1889 constituted 32·10 per cent. of the total value of imports, amounting to \$239,140,526, as against \$220,620,454 in 1888, equal to 30·47 per cent. of the imports of that year. Articles in a crude condition which enter into the various processes of domestic industry are represented by the sum of \$178,646,695, being 22·90 per cent. of the total imports, as against \$175,013,755, or 24·17 per cent. in 1888. Articles wholly or partially manufactured, but serving as materials in the manufactures or mechanic arts, were valued at the total sum of \$83,980,302, forming 11·27 per cent. of the merchandise imports in 1889, as compared with \$84,830,801, equal to 11·71 per cent. in 1888. Manufactured articles ready for consumption were valued at \$146,078,917, or 19·61 per cent. of the total in 1889, as compared with \$144,656,061, or 20 per cent. for the previous year. Articles of voluntary use and luxuries were valued at \$97,285,225 in 1889, as against \$98,836,043 in 1888, the percentages being 13·06 and 13·65 respectively. Among the articles free of duty imports of food and live animals constituted 46·52 per cent. of the whole, and among dutiable articles 24·52 per cent. in 1889. Raw materials formed 44·62 per cent. of the total value of duty-free imports, and 13·14 per cent. of articles paying duty. Partly manufactured articles destined for uses of manufacture constituted 4·33 per cent. of the untaxed, and 14·92 per cent. of the dutiable imports. Manufactured articles ready for consumption constituted 3·41 per cent. of the free, and 28·11 per cent. of the dutiable articles. Luxuries and articles of voluntary use form 1·12 per cent. of the total imports on the free list, and 19·31 per cent. of the total value of dutiable imports. The total value of dutiable merchandise imported in 1889 was \$488,644,587, as against \$479,885,499 in 1888; the total value of merchandise free of duty was \$256,487,078, as against \$244,071,615. Of the total imports in 1889 those imported direct from foreign countries are represented by the sum of \$686,722,505, while \$37,234,609 is the value of those imported through the exterior ports without appraisement. The total value of imports entered for immediate consumption is returned as \$574,081,206; that of imports entered for warehouse, \$149,875,908. As respects the means of carriage employed in the import trade the merchandise brought by railroad and land vehicles was \$38,226,886 in 1889, as against \$32,209,459 in 1888; brought in American steam vessels, \$64,453,651, as against \$658,150,010; in American sailing vessels, \$56,330,451, as against \$55,375,288; in foreign steam vessels, \$525,161,016, as against \$496,127,336; in foreign sailing vessels, \$60,959,661, as against \$72,095,021.

The values of the principal articles and classes of articles exempt from duty imported into the United States during the twelve months ending June 30, 1889, as compared with the values for the preceding year, are shown in the following table:

ARTICLES FREE OF DUTY.	1888.	1889.
Animals	\$3,328,092	\$3,287,538
Articles, produce of U. S., return'd.	8,461,319	5,857,788
Art works	530,711	337,899
Asphaltum	113,854	89,211
Bark, hemlock	290,265	185,782
Bolting-cloths	297,571	299,416
Books, maps, engravings, etc.	975,637	1,155,215
Alizarine	414,298	438,708
Argal, or crudo tartar.	2,320,512	2,490,571
Cinchona bark	344,718	367,966
Cochineal	46,444	74,285
Logwood, etc.	1,671,513	1,665,452
Gums	5,491,560	5,276,467
Indigo	2,231,555	2,684,105
Chloride of lime	1,568,417	1,659,473
Licorice root	830,490	874,430
Mineral waters	375,559	331,114
Potash, muriate of	822,089	1,067,344
Quinia, salts of	651,535	909,201
Soda, nitrate of	2,449,639	2,275,021
Sulphur	1,581,582	2,025,644
Vanilla beans	842,201	699,903
All other chemicals, drugs, and dyes.	4,085,565	3,755,451
Cocoa	2,251,773	2,142,061
Coffee	60,507,630	74,724,882
Coir yarn	141,096	124,256
Cork wood and bark	1,078,802	902,047
Cotton, raw	744,800	1,194,505
Diamonds, rough	809,613	257,505
Eggs	2,312,478	2,418,976
Farinaceous substances	905,991	941,998
Fertilizers	1,065,722	1,613,662
Fibers	119,552	104,887
Fish	1,402,145	1,573,497
Bananas	3,153,654	3,571,024
Cocoanuts	824,762	782,706
Other fruits	1,809,451	1,597,632
Furs, undressed	1,952,316	2,088,167
Hair	2,130,892	2,431,518
Goat-skins	6,369,411	7,668,472
Other skins	17,569,928	17,459,278
Personal effects of immigrants and citizens.	3,037,380	2,732,972
India-rubber and gutta-percha ..	16,067,262	12,387,131
Ivory, animal	685,763	591,052
Ivory, vegetable	156,533	96,574
Oils, fixed	980,991	713,364
Oils, volatile	1,050,317	1,036,524
Ores, gold-bearing	3,288	87,287
Ores, silver-bearing	5,115,563	6,951,719
Paper stock	5,463,036	5,925,047
Plaster-of-Paris	148,316	184,472
Platinum	564,761	565,301
Plumbago	371,441	248,487
Seeds	720,189	658,792
Silk, unmanufactured	19,931,632	19,333,229
Spices	3,341,568	3,203,305
Tea	13,360,635	12,435,533
Tin	8,758,562	7,014,495
Wood	4,139,787	4,439,624
Articles from Hawaiian Islands ..	10,818,484	12,588,593
All other free articles	4,829,384	5,479,445
Total free of duty	\$244,071,615	\$256,487,078

Of animals for breeding, there were imported in 1889, 4,462 head of cattle, against 6,866 in 1888; 9,911 horses, against 10,378; and 5,926 sheep, against 18,866. The quantity of distilled spirits returned free of duty in 1889 was 1,615,316 proof gallons, against 2,795,562 in 1888. The imports of coffee show an increase from 423,645,794 pounds to 578,397,454 pounds. Fresh fish increased from 33,052,402 pounds to 47,369,361 pounds. The India-rubber import was 32,339,501 pounds, while in 1888 the quantity was 36,628,351 pounds. The imports of silver ore con-

tained 55,564,550 pounds of lead admitted free of duty at Paso del Norte, Siluria, and Corpus Christi, on the border of Mexico, from which country 89 per cent. of the imports of silver ore were received. The import of rags for paper stock showed an increase from 113,435,454 pounds to 142,738,858 pounds. The import of raw silk increased from 5,173,840 pounds to 5,329,646 pounds; of waste silk from 742,313 pounds to 1,221,941 pounds. The imports of spices of all kinds decreased from 27,515,564 pounds to 24,652,100 pounds. The tea imports were 78,292,116 pounds, having fallen off from 84,627,870 pounds in 1888. Tin imports increased from 31,690,583 pounds to 33,877,287 pounds. The imports of raw sugar from the Hawaiian Islands were 243,324,683 pounds, against 228,540,513 pounds in 1888; of rice, 10,660,300 pounds, against 12,269,500 pounds.

The values of the dutiable imports and classes of imports in 1889 and in the previous year are found in the subjoined table:

DUTIABLE ARTICLES.	1888.	1889.
Animals	\$4,678,293	\$3,936,766
Art works	1,679,807	1,308,336
Books, maps, engravings	2,907,779	2,913,742
Brass, and manufactures of	293,093	183,861
Breadstuffs	8,755,792	8,029,724
Bristles	1,215,325	1,284,724
Brushes	639,155	654,651
Buttons	3,710,705	3,252,406
Cement	1,903,650	1,459,838
Coal-tar colors	1,539,678	1,686,456
Glycerine	1,064,756	983,354
Logwood extract, etc.	162,669	149,789
Opium, crude	1,234,321	809,893
Opium prepared for smoking	555,339	644,204
Saltpetre	212,049	209,426
Soda, salts of	4,504,130	4,296,288
Sumac	264,728	209,643
Other chemicals and drugs	3,800,602	4,092,883
Earths	319,202	322,960
Clocks, and parts of	388,253	420,822
Watches, and parts of	1,662,096	1,662,118
Coal, bituminous	2,846,741	3,929,245
Copper ore	291,185	400,229
Copper, and manufactures of	116,695	82,649
Corsets	1,001,306	869,957
Cotton cloths	3,439,145	3,899,382
Clothing, cotton	392,307	383,612
Cotton embroideries, laces, etc.	11,071,907	9,591,944
Cotton knit goods	6,378,780	6,389,324
Cotton thread	957,705	860,703
Other manufactures of cotton	6,682,955	5,681,065
Earthen, stone, and china ware.	6,410,871	6,476,199
Beads	2,007,859	1,259,942
Dolls	1,683,532	1,865,389
Fans	504,312	462,727
Feathers	1,408,571	848,103
Feathers and flowers, artificial ..	483,940	979,861
Pipes and smokers' articles	361,485	343,964
Other fancy articles	236,774	290,782
Fish	590,744	610,764
Flax, hemp, and jute	3,462,925	3,235,860
Flax, hemp, and jute, manufact-	17,545,189	20,468,475
ures of	23,742,171	25,705,558
Fruits	14,714,356	12,795,055
Furs, dressed, and manufact'es of.	4,783,028	5,329,588
Glass and glassware	7,854,725	7,712,359
Hair	172,593	154,423
Hats, bonnets, boots, and mate-	6,386,353	4,197,877
rials for	979,524	1,082,885
Hay	1,017,495	1,155,472
Hops		
India-rubber and gutta-percha,		
manufactures of	343,208	336,227
Iron ore	1,818,034	1,507,658
Iron and steel manufactures	48,992,757	42,377,842
Jewelry, and gold and silver		
manufactures	1,160,754	1,228,369
Precious stones and imitations of.	10,520,907	10,771,633
Lead, and manufactures of	661,917	549,257
Leather	6,870,032	6,019,823

DUTIABLE ARTICLES.	1888.	1889.
Leather manufactures	5,101,727	5,276,499
Malt	164,585	111,381
Malt liquors	1,363,358	1,362,211
Marble and stone	965,262	1,006,577
Metals, metal compositions, and manufactures of	3,126,865	3,327,020
Mineral substances	144,735	116,713
Musical instruments	1,843,344	1,722,380
Oils	1,199,775	1,373,614
Paints and colors	1,244,320	1,294,311
Paper	2,400,790	2,542,383
Provisions and dairy products ..	2,089,281	1,774,391
Rice	2,461,704	3,005,271
Salt	1,156,962	943,131
Seeds	2,113,232	4,438,431
Silk, manufactures of	33,350,999	35,122,766
Soap	473,189	455,166
Spices, ground	187,677	173,668
Brandy	1,119,327	1,076,322
Other spirits	838,484	851,765
Sponges	853,104	318,385
Sugar, molasses, and candy	69,494,426	81,249,872
Tobacco, leaf	10,370,841	10,868,226
Tobacco, manufactures of	3,506,949	3,742,764
Vegetables	7,365,424	2,269,799
Wines, sparkling	3,646,475	4,254,413
Wines, still	3,639,723	3,452,359
Wood, and manufactures of	10,525,013	11,234,973
Clothing wools	4,541,242	5,971,246
Combing wools	1,330,565	1,536,079
Carpet and other wools	10,015,410	10,417,190
Woolen manufactures	47,719,393	52,564,942
Zinc, spelter, and manufactures of.	222,524	166,697
All other dutiable articles	5,919,082	6,255,026
Total	\$479,385,499	\$458,644,537

The imports of live animals include 57,567 cattle, against 57,505 in 1888; 48,768 horses, against 52,033; and 398,894 sheep, against 454,213. The imports of barley were 11,368,419 bushels, valued at \$7,723,838, against 10,831,461 bushels, valued at \$8,076,082, in 1888. The imports of cotton piece goods increased from 27,560,196 to 30,386,189 square yards. Bituminous coal increased in quantity from 877,504 to 1,155,829 tons. Under the head of fish there was a decline in the imports of cured cod, sardines, and pickled herring and salmon, and an increase in smoked herring and other sorts. The flax imports advanced in quantity from 5,691 to 7,896 tons; hemp from 47,947 to 55,835 tons; sisal grass and other fibers from 36,401 to 38,542 tons; but jute receded from 115,163 to 88,655 tons. Under the head of fruits there was a marked falling off in the imports of oranges, lemons, prunes, and raisins. Plate glass and mirrors show a decline. The hop imports, though higher prices made the total value greater than in 1888, fell away in quantity from 5,585,033 to 3,976,158 pounds. The imports of iron ore decreased from 919,644 to 653,206 tons; pig iron from 325,517 to 183,256 tons; scrap iron from 142,087 to 34,217 tons; bar iron from 74,363,371 to 69,180,491 pounds; steel rails from 136,799 to 24,257 tons; steel ingots, blooms, and bars from 414,489,698 to 215,630,939 pounds; wire from 270,939,550 to 180,209,180 pounds. In cutlery, machinery, and firearms there were larger imports, and in taggers' tin there was an increase from 634,944,945 to 735,737,990 pounds. The imports of cheese declined from 8,750,185 to 8,207,026 pounds. Rice imports were 122,346,138 pounds, against 87,546,501 pounds in 1888. Salt shows a decline from 690,346,266 to 582,379,147 pounds. The linseed imports more than doubled, being 3,259,460 bushels in 1889. Among silk manufactures

there were smaller imports of piece goods and ribbons, but an increase in laces. The imports of cane sugar were less in quantity than in 1888, being 2,275,159,226 pounds, against 2,409,757,892 pounds; but the total value was greater, being \$69,495,455, against \$62,388,740. The beet-sugar imports increased in quantity from 61,949,752 to 243,474,041 pounds, and in value from \$1,594,776 to \$6,957,910. The leaf-tobacco imports increased from 18,600,142 to 20,106,881 pounds; yet the total value was about the same in both years. The imports of cigars were about 8 per cent. greater. Potatoes were imported to the amount of 8,259,538 bushels, valued at \$3,693,021, in 1888; but in 1889 the imports were not much more than a tenth as great in quantity and less than a tenth in value. Peas and beans declined from 1,942,864 to 765,483 bushels. The imports of clothing wools were 29,226,317 pounds, against 23,039,679 pounds; of combing wools, 6,869,871 pounds, against 5,639,528 pounds; of carpet and other low-grade wools, 90,391,541 pounds, against 84,879,546 pounds; of carpets, 601,791 square yards, against 892,981 square yards in 1888; of cloths, 8,852,718 pounds, against 9,989,702 pounds; of dress goods, 91,284,188 square yards, against 85,630,007 square yards; of shoddy and waste, 8,662,209 pounds, against 4,483,325 pounds; of yarns, 3,616,326 pounds, against 3,740,604 pounds.

Exports.—The exports amounted to \$742,401,799, while the average for the past four years was \$708,516,087. The average for the previous five years, 1881-'85, was, however, \$791,892,474, while in 1880-'81 the exports amounted to \$902,377,346. These figures show that, in recent years, there has been a marked tendency to decline in the export trade. The main falling off has been in breadstuffs. The exports under this head were considerably less than one half the grain exports of 1879-'80, the year of greatest exportation, when they amounted to \$286,764,807. The total export of provisions and dairy products shows a slight increase on the previous three years, but was much less than in any of the ten preceding years, and one third less than the maximum of \$156,809,840, which was attained in 1880-'81. The export of cotton in 1888-'89 has only been exceeded twice in fourteen years. Kerosene shows an increase over the previous two years, and was about the average in value, though above the average in quantity. Owing to Russian competition, American petroleum, while increasing in the quantity exported, is falling in price. These four staples represent 70 per cent. of the total exports. The tobacco export, which is next in importance, was smaller than in 1888. There was a decline also in cotton goods, but iron and steel and their manufactures show an improvement.

The imports and exports now almost balance; the average export of the last four years is \$708,516,087, while the average of imports is \$699,210,123, and, during the last two years, the imports for the first time exceeded the exports. Heretofore the balance has always been very much the other way; in 1878-'79 exports exceeded imports by \$264,661,666. The movements of gold and silver have, of course, been greatly affected by this change. America usually imports more gold than it exports; the net

export in 1889 was \$49,667,427. The exports of silver have always exceeded the imports; last year the difference was greater than any other, amounting to \$18,011,033.

The exports of domestic merchandise, classified according to the sources of production, are exhibited in the following table, giving the total values of each group for the two years 1888 and 1889:

CLASSES OF ARTICLES.	1888.	1889.
Agricultural products	\$500,785,816	\$532,141,790
Mining products	18,060,393	19,947,736
Forest products	23,991,092	26,997,127
Fishery products	5,455,719	6,995,002
Miscellaneous raw products	5,250,298	5,425,966
Total	\$553,542,818	\$591,507,621
Manufactures	130,319,286	138,774,867
Grand total	\$683,862,104	\$730,282,488

Agricultural products constituted 73·23 per cent. of the domestic exports in 1888, whereas, in 1889, the proportion was 72·87 per cent.; the variation was not caused, however, by an improvement in the ratio of manufactured products, which formed 19·06 per cent. of the whole in 1888, and only 19 per cent. in 1889, but by the gain in the percentage of forest products from 3·51 to 3·70 per cent. of minerals from 2·63 to 2·73 per cent., and of the products of the fisheries from 0·8 to 0·96 per cent.

The values exported of the various articles and classes of articles of domestic production in 1889, compared with the figures for 1888, are given in the following table:

ARTICLES.	1888.	1889.
Agricultural implements	\$2,645,187	\$3,623,769
Animals	12,885,090	18,374,813
Art works	271,010	694,405
Bark for tanning	254,204	270,885
Billiard tables	31,670	34,888
Blacking	191,976	182,188
Bones, hoofs, and horns	193,176	242,429
Books, maps, and engravings	1,734,571	1,712,079
Brass, and manufactures of	308,124	321,137
Breadstuffs	127,191,687	123,876,423
Bricks	78,830	70,915
Broom corn	160,651	152,542
Brooms and brushes	164,433	155,551
Candles	147,331	138,277
Carriages and horse cars	1,381,291	1,664,284
Cars, railroad	862,465	1,426,237
Casings for sausages	766,186	510,114
Chemicals, drugs, dyes, and medicines	5,633,972	5,541,531
Clocks and watches	1,529,606	1,355,319
Coal, anthracite	4,022,340	4,217,003
Coal, bituminous	2,273,040	2,473,476
Coffee and cocoa, ground	121,367	94,023
Copper ore	5,064,687	7,518,258
Copper, manufactured	8,812,798	2,348,954
Cotton	223,016,760	237,775,270
Cotton cloth	11,885,559	8,462,774
Cotton clothing	317,652	301,589
Other cotton manufactures	1,359,978	1,448,067
Earthen and china ware	201,781	167,739
Eggs	66,724	75,873
Fancy articles	917,980	1,142,703
Fertilizers	1,255,028	983,569
Fish	4,177,930	5,969,235
Flax, hemp, and jute manufactures	1,391,216	1,644,485
Fruits	3,510,208	5,071,584
Furs and fur skins	4,777,246	5,084,435
Glass	881,628	894,044
Glucose	163,573	748,560
Glue	46,773	72,283
Grease	924,777	827,576
Gunpowder	123,346	135,118
Other explosives	525,270	750,519

ARTICLES.	1888.	1889.
Hair, and manufactures of	311,279	388,731
Hay	328,819	328,777
Hides and skins	673,322	909,198
Honey	7,579	93,888
Hops	1,203,060	2,523,832
Ice	86,844	86,402
India-rubber and gutta-percha, manufactures of	866,867	881,335
Ink	124,670	129,698
Instruments	714,514	1,033,888
Iron and steel	17,768,028	21,154,774
Jewelry	439,417	916,264
Lamps	570,036	509,002
Lead	129,558	199,802
Leather, and manufactures of	9,583,411	10,747,589
Lime and cement	122,421	157,010
Malt liquors	686,842	625,396
Marble and stone, and manufactures of	644,544	657,052
Matches	72,371	61,171
Musical instruments	908,540	993,072
Naval stores	2,349,801	2,188,326
Oakum	32,518	40,253
Oil cake and oil meal	6,423,930	6,927,912
Animal oils	1,133,981	1,117,356
Mineral oils, crude	5,782,008	5,083,132
Mineral oils, refined or manufact'd	41,260,401	44,830,424
Vegetable oils	2,359,778	1,585,783
Ore, gold and silver	107,878	80,961
Paints and colors	492,709	507,389
Paper, and manufactures of	1,073,561	1,191,035
Paraffine and paraffine wax	2,168,247	2,029,602
Plated ware	551,069	587,163
Provisions	93,058,030	104,122,388
Quicksilver	531,122	294,947
Rags	81,490	20,434
Rice	22,234	24,124
Salt	31,478	34,266
Seeds	1,516,690	3,874,504
Silk manufactures	56,669	72,999
Soap	815,864	839,358
Spermaceti	84,018	111,386
Spices, ground or prepared	36,270	30,711
Spirits	871,377	2,218,101
Spirits of turpentine	3,580,106	3,777,525
Starch	202,932	272,630
Stationery, other than paper	425,091	474,839
Stereotype and electrotype plates	31,931	24,633
Straw and palm-leaf manufactures	79,625	61,897
Sugar and molasses	3,255,679	2,117,533
Tin, manufactures of	219,000	236,738
Tobacco, unmanufactured	21,936,084	18,901,068
Tobacco, manufactures of	3,578,457	3,705,600
Trunks and traveling-bags	173,760	184,624
Umbrellas and sunshades	1,075	4,578
Varnish	187,159	202,727
Vegetables	1,241,237	1,449,952
Vessels sold to foreigners	107,350	37,372
Vinegar	10,365	10,464
Wax, bees'	20,554	23,918
Whalebone	799,042	762,464
Wine	233,223	269,488
Wood, and manufactures of	23,063,107	26,907,161
Wool, raw	5,272	23,065
Woolen manufactures	471,353	347,411
Zinc ore or oxide	15,976	25,354
Zinc, manufactures of	18,601	28,684
All other unmanufactured articles	492,155	473,808
All other manufactured articles	755,513	920,902
Total domestic exports	\$683,862,104	\$730,282,488

The exports of cattle numbered 205,786 head in 1889, against 140,208 in the preceding year. The exports of live hogs were 45,128 in number, nearly double those of 1888, and the number of horses exported increased from 2,263 to 3,748, while sheep fell off in number from 143,817 to 128,852, though the aggregate value shows an increase of over thirty per cent. In bread stuffs there was an increase in the exports of corn from 24,278,417 to 69,592,931 bushels, which, with increased exports of barley, corn meal, oats and oat meal, rye and bread and biscuit, nearly offset the decline in the exports of wheat from 65,789,261 to 46,414,129 bushels, and of wheat flour from 11,963,-

574 to 9,374,803 barrels. A considerable falling off in the exports of chemical products, dyes, and medicinal roots and barks was partly made up by an increased export of patent medicines. The export of sea-island cotton decreased from 7,053,765 pounds to 6,419,569 pounds, while that of other kinds increased from 2,257,067,061 pounds to 2,378,397,100 pounds. In colored cotton cloths there was a decrease from 54,446,936 to 41,557,455 yards, and in uncolored from 115,766,679 to 76,895,736 yards. The exports of cured codfish fell off from 17,820,883 pounds to 15,703,403 pounds, and those of herring in like proportion; but the canned-salmon export rose from 13,484,585 pounds, valued at \$1,608,815, to 28,393,140 pounds, valued at \$3,364,560. The export of dried apples was 22,102,579 pounds, nearly double that of the previous year, though the price was 25 per cent. less. The export of green apples increased from 489,570 barrels, of the value of \$1,378,801, to 951,070 barrels, of the value of \$2,301,959. The increase in the export of hops was from 6,793,818 pounds to 12,589,262 pounds. Under the head of iron and steel the increase in value was due to large exports of machinery, locks, firearms, tools, and locomotives. The export of crude mineral oil decreased from 85,538,725 to 72,987,383 gallons; that of naphthas increased from 12,066,921 to 14,100,054 gallons; lubricating and paraffine oils, from 22,889,529 to 25,166,130 gallons; and illuminating oil, from 456,487,221 to 502,256,988 gallons, the value being \$39,286,503 in 1889, against \$36,215,410 for the previous year. Cotton-seed oil shows a falling off in quantity from 4,458,597 to 2,690,700 gallons. In the class of provisions there was an increase in the export of canned beef from 40,458,375 pounds to 51,025,254 pounds; fresh beef, from 93,498,273 pounds to 137,895,391 pounds; salted beef, from 48,980,269 pounds to 55,006,399 pounds; bacon, from 331,306,703 pounds to 357,423,188 pounds; pickled pork, from 58,836,966 pounds to 64,110,845 pounds; lard, from 297,740,007 pounds to 318,242,990 pounds. The export of tallow, on the other hand, decreased from 92,483,052 pounds to 77,844,555 pounds; hams, from 44,132,980 pounds to 42,801,458 pounds; oleomargarine, from 30,146,595 pounds to 28,102,534 pounds. The export of butter was 15,504,517 pounds in 1889, an increase of 50 per cent., the value showing an increase from \$1,884,908 to \$2,568,709. The export of cheese declined from 88,008,458 pounds, valued at \$8,736,304 to 84,999,828 pounds, valued at \$7,889,671. The large increase in the exports of seeds was owing to a growth in the trade in clover seeds from 13,357,899 pounds, of the value of \$34,253,137, valued at \$3,110,583. There was an export of bourbon whisky amounting to 1,292,329 gallons, against 225,754 gallons only in 1888, and an increase of more than one hundred per cent. in the exports of rye whisky and rum. The export of refined sugar declined from 34,505,311 pounds, valued at \$2,184,788, to 14,167,216 pounds, valued at \$1,070,236. The exports of tobacco leaf and stems amounted to 223,759,232 pounds, against 262,682,821 pounds in 1888.

The exports of domestic produce that were carried in cars and other land vehicles in 1889 had a value of \$26,225,185, as compared with \$19,636,842; American steam vessels carried the

aggregate value of \$37,083,575, as compared with \$32,635,765; American sailing vessels, \$43,836,207, against \$33,080,996 in 1888; foreign steam vessels, \$531,623,376, against \$496,997,216; foreign sailing vessels, \$91,514,145, against \$101,511,285.

The exports of foreign merchandise in 1889 had an aggregate value of \$12,118,766, as compared with \$12,092,403 in 1888. Of the total, \$7,334,959 represent dutiable and \$4,783,807 free merchandise, as compared with \$7,657,498 and \$4,434,905 in 1888. The exports from bonded warehouses were \$6,909,171 in 1889, and \$7,002,784 in 1888. Of the total value of foreign merchandise re-exported \$2,211,332 were carried in cars and land vehicles, against \$2,510,526 in 1888; \$968,472 in American steam vessels, against \$928,935; \$1,133,922 in American sailing vessels, against \$686,479; \$6,931,566 in foreign steam vessels, against \$7,115,645; and \$873,474 in foreign sailing vessels, against \$850,818.

Of the exports of reapers, mowers, and other agricultural implements nearly one half went to European countries, not far from one third to the Argentine Republic, and the rest to all parts of the world. The cattle exports are sent to Great Britain, and two thirds of the exports both of corn and of wheat were absorbed by that country in 1889. Horse cars and railway cars are shipped to Mexico, South America, and Australasia. Canada is the chief consumer of the coal exports. Copper ore goes to Great Britain; but France took the largest share of the metal exported in 1889. Of the total export of raw cotton 1,470,448,186 pounds were shipped to England, 330,377,863 pounds to Germany, 200,098,258 pounds to France, and 336,287,876 pounds to other countries in Europe. The exports of cotton cloths went to China and to the countries of South and Central America. Of the exports of peltry and furs Great Britain took nearly four fifths, and Germany the remainder. The export of hops went to Great Britain. Of the exports of iron and steel manufactures and machinery Great Britain and other European countries take a considerable share, but the main part is sent to American countries. The exports of leather are consumed in Europe. Great Britain formerly absorbed nearly the entire export of oil cake and oil meal; but in 1889 considerably more than one quarter was shipped to Continental Europe, chiefly to Germany. The largest part of the crude petroleum is taken to France to be refined in protected factories. The largest consumers of refined oil in 1889 were the following countries: Germany, 145,029,216 gallons; other countries of Continental Europe, 128,673,709 gallons; Great Britain, 84,269,942 gallons; British India, 41,840,018 gallons; China, 9,851,760 gallons; Australia, 7,892,458 gallons; other countries in Asia and Oceania, 70,983,064 gallons; Brazil, 8,963,631 gallons; Argentine Republic, 6,424,669 gallons; Africa, 6,412,554 gallons. Three fourths of the export of canned beef went to Great Britain, and one half of the remainder to British North America. The shipments of fresh beef were all destined for Great Britain. Of salted and pickled beef nearly three fifths went to the same country; more than one eighth to British North America; one ninth to Continental Europe; two fifths of it to Germany; one eighth to

the West Indies; and most of the remainder to South America. Of the tallow export 34,716,124 pounds went to the United Kingdom, 34,406,731 pounds to the rest of Europe, and 8,721,700 pounds to Mexico and other countries. Great Britain took 299,891,556 pounds of the bacon export; British North America, 28,938,458 pounds; Continental Europe, 22,335,994 pounds; the West Indies, 4,138,130 pounds; and other countries, 1,701,128 pounds. Of the total export of hams 34,866,806 pounds, or nearly five sixths, were sent to Great Britain, and most of the remainder to the West Indies and Canada. The exports of pork, fresh and pickled, were distributed mainly among the West Indies, which took 21,284,265 pounds; British America, which took 20,680,833 pounds; and Great Britain, which took 14,912,087 pounds. Of the total lard export 117,168,225 pounds were shipped to Great Britain, 48,664,002 pounds to Germany, 29,326,634 pounds to France, 48,616,714 pounds to other European countries, 40,002,683 pounds to the West Indian islands, 14,119,619 pounds to British America, 17,367,726 pounds to South American countries, 2,287,520 pounds to Mexico and Central America, and 689,867 pounds to other parts of the world. The bulk of the oleomargarine goes to the Continent of Europe; and of the butter about one half to England and other European countries, and one half to the West Indies and countries of North and South America. Great Britain takes six sevenths of the cheese export, and British America nearly all the residue. Of the export of refined sugar in 1888 Great Britain and Canada took more than one half; but in 1889 the export to Great Britain fell off from 15,952,012 pounds to 527,111 pounds, while the shipments to South and Central America, Oceania, Australia, and Africa showed only a slight decline. Of the exports of leaf tobacco 49,957,570 pounds went to Germany, 42,419,670 pounds to Great Britain, 23,715,144 pounds to France, 93,207,188 pounds to other European countries, 4,206,761 pounds to British America, 3,079,411 pounds to the West Indies, 2,306,493 pounds to Africa, and smaller quantities to other countries. Nearly one half of the manufactured tobacco was exported to British Australasia. Of the timber exports 27 per cent. went to Great Britain and the rest of Europe, 22 per cent. to Australia and the Pacific islands, 20 per cent. to the Argentine Republic, 10 per cent. to the West Indies, and the rest mostly to other American countries.

Trade with Spanish America.—The rapid growth of the trade between the United States and Spanish America is shown by the following figures: In 1866 the total trade of the country with Mexico was \$6,299,000; in 1888 it amounted to \$27,228,000, the main part of the increase (\$1,726,000 to \$17,330,000) being in the imports from Mexico. With the Central American states in 1886 the total trade was only \$1,784,000; in 1888 it was \$12,399,000, and here again the larger part of the increase (\$6,914,000) was in imports. With the West Indian archipelagos in 1866 the total trade was \$80,000,000; in 1888 it was \$99,000,000. In this case there was an absolute decrease of \$3,000,000 in United States exports, but the imports from the West Indies showed in the twenty-two years an increase of \$22,000,000, or 45 per cent. With

South American countries the trade, which in 1866 was \$48,000,000, in 1888 was \$114,000,000, the main increase here again being in imports. The total growth is shown in the following table:

YEARS.	Exports.	Imports.	Total.
1866.....	\$54,000,000	\$83,000,000	\$137,000,000
1888.....	72,000,000	181,000,000	253,000,000

The increase in exports is 33 per cent., and in imports to the United States from these countries 118 per cent. In the same period the increase in the total export trade of the United States was 108 per cent., and of the import trade 60 per cent., so that the trade with Spanish America has developed somewhat more than that with the rest of the world. The chief feature of the statistics, however, is the slow growth of United States exports. The trade has not grown with the growth of the trade of the United States, or with the growth of the trade of the countries in question with the rest of the world.

Movement of Specie.—The imports of gold for the twelve months ending June 30, 1889, amounted to \$10,284,858, of which \$7,175,789 consisted of foreign coin, \$1,403,619 of United States coin, and \$1,705,450 of bullion. The gold exports for the year amounted to \$59,952,285, of which \$50,786,393 consisted of domestic bullion, \$4,143,939 of United States coin, \$4,990,020 of foreign coin, and \$31,933 of foreign bullion. The silver imports for the twelve months amounted to \$18,678,215, of which \$12,687,823 consisted of foreign coin, \$5,713,049 of bullion, and \$277,343 of domestic coin. The exports of silver for the same period were \$36,689,248, consisting of \$25,217,903 of domestic bullion, \$66,759 of United States coin, \$11,373,972 of foreign coin, and \$30,614 of foreign bullion. The total imports of gold and silver amounted to \$28,963,073, as compared with \$59,337,986 in 1888, and the total exports to \$96,641,533, as compared with \$46,414,183. There was an excess of imports up to December, 1887, amounting for the first five months of the financial year 1887-'88 to \$31,460,164. Then the balance changed, reducing the net importation to \$12,923,803 for the twelve months ending June 30, 1888. During 1888-'89 there was a continuous outward movement of specie, amounting for the entire year to \$67,678,460, more than one half of which occurred during the last two months. The net export then decreased from \$19,281,630 in June, 1889, to \$5,285,757 in July, and \$2,623,061 in August.

CONGO FREE STATE, a territory in Africa defined by the general act of the International Congo Conference, signed at Berlin on Feb. 26, 1885, and constituted an independent state, which is declared neutral and free to the trade of all nations, together with the rest of the basin of the river Congo. The navigation of the Congo is under the control of an International Commission. The sovereign of the Free State is Leopold II., King of the Belgians, who was authorized by the Belgian Legislature to assume that dignity in 1885. The seat of the supreme government, consisting of the King and the heads of the three departments of Foreign Affairs and Justice, Finance, and Internal Affairs, is at the Belgian capital. A Superior Council,

composed of eminent jurists, was constituted at Brussels in August, 1889, to act as a court of cassation and high court of appeal, and as a council to draw up the necessary laws for the Congo State. The council is composed of Belgian statesmen and advocates, among them ex-Ministers Graux and Rolin Jacquemyns, and three foreign members—Prof. de Maertens, of the University of St. Petersburg; Prof. Rivier, of the University of Brussels, who is Swiss consul-general in Belgium; and Thomas Barclay, an Englishman practicing law in Paris. The president is E. Pirmez, Belgian Minister of State. The bureaucratic faults that have been brought to the charge of the administration have been remedied by transferring frequently the officials of the central administration to the Congo, and recalling resident officials to take their places at Brussels. In 1889 C. Janssen, the former governor-general, returned to his old post, while M. Ledeganck, who has acted as vice-governor, and latterly as governor-general, succeeded him as general administrator of the Department of the Interior, Police, and Marine at Brussels. Captain Cambier, in June, succeeded Inspector-General Gondry, who died at Boma.

A decree regulating the possession of firearms, issued on Oct. 11, 1888, although opposed in the Dutch factories, has been enforced. A Belgian Anti-Slavery Society was constituted at the time of the blockade of the east coast of Africa, and a detachment of ten whites and seventy-five blacks was sent out to the eastern provinces of the Congo State in order to form two garrisons for the prevention of slave raids. The Government of the Free State created a fortified camp on the right bank of the Congo, at the confluence of the Aruwimi, with the chief object of putting a stop to slave hunts in that region. The post is in the country of the Basokos, the tribe that resisted by force the passage of Henry M. Stanley in 1877. Now many of them have entered the service of the Congo State. Between Basoko and Bangala Lieutenant Dhanis, who laid out the intrenched camp, has established intermediate stations at Umangi, Upoto, and Yambinga. At Upoto, which is planted in the midst of a rich trading tribe that was hostile to the State two years ago, steamers always find plenty of provisions. At Bangala the relations between the Europeans and the natives are good, and many of the latter seek service under the State. The new stations were not established without a conflict. The series of operations conducted by Lieutenant Dhanis lasted two months, at the end of which time order was restored, and important tribes have come under the direct influence of the Congo State. The natives around Stanley Pool, and as far as the river Inkissi, have abandoned their cruel savage customs. The Batakese, having lost the monopoly of the ivory trade, became impoverished; but they have turned their attention to tillage, and now Leopoldville, after a temporary decay, is the center of a flourishing agricultural district. Rumors of the treason of Tippoo Tib and of a war with the Arabs at Stanley Falls were contradicted by returning officers, who reported that all the stations were making good progress. The forces at the command of the Congo State, in the spring of 1889,

numbered 1,600 well-drilled men, of whom 400 were sent to the Aruwimi.

Alexandre Delcommune, who was charged by the Congo Company with the commercial exploration of the upper Congo and its affluents, returned to Brussels in the summer of 1889 from a two years' voyage with Fernand de Meuse and Léonard Baudouin. He ascended the Congo to Stanley Falls, the Kassai and all its tributaries, the Tchwapa, the Lulonga, the Aruwimi, the Lumami, and other rivers, exploring altogether 10,000 kilometres of navigable water-ways in the steamboat "Roi des Belges." The most interesting rivers, by reason of the splendors of their tropical scenery and the density and civilized condition of the inhabitants, are the Sankuru and the Lumani, on the banks of which the explorers encountered towns with several thousand inhabitants, where they were cordially received. In the midst of a nest of villages near the head of navigation on the Sankuru Lieutenant Paul Lemarinel has established himself in an intrenched camp, with a garrison of 600 men under his orders and a new steamer at his disposal. Steamers can ascend the Loumami, above some rapids, to within a few days' march of Nyangwe. The Djuma, one of the tributaries of the Kassai, has a width of not less than 900 metres at its confluence with the Koango.

Commerce.—Cotton goods, firearms, powder, brandy, and tobacco are the chief imports. The total value of the exports in 1887 was 7,667,970 francs. The chief articles and their values were as follow: Coffee, 1,809,678 francs; ivory, 1,841,120 francs; ground nuts, 972,280 francs; palm oil, 801,303 francs; rubber, 1,748,187 francs; gum copal, 163,542 francs; wax, 125,490 francs. The number of vessels entered in 1887 was 480. There are several millions of Belgian capital embarked in the commercial exploitation of the basin of the Congo, yet the imports of Belgian products into the Free State in 1888 did not exceed 250,000 francs, while from the Netherlands more than 5,000,000 francs' worth of goods were imported. An ivory market has been established at Antwerp, where, on July 30, 1889, the first shipments of Congo ivory, consisting of 1,139 tusks weighing 15,000 kilogrammes, brought direct from the Congo by the steamers "Africa" and "Benguela," were sold at auction to buyers from all parts of Europe, at the average price that obtained at the last sales in Liverpool and London, between 27 and 28 francs per kilogramme. A public sale of caoutchouc was arranged also. The number of steamers on the upper Congo is constantly growing larger. In the summer of 1889 there were nineteen steamboats on the section between Kwamouth and the junction of the Aruwimi. By a decree of the sovereign of the Congo State, elephant-hunting has been prohibited in the whole of its territory, except by special permission, in the interest of the preservation of the race. Copper and iron are found in the territory of the Congo State; but whether it will pay to work them for export can not be determined till the Congo railroad is built. A company was organized in Ghent in 1889 for the purpose of working tobacco plantations.

Finance.—The annual budget of expenditure fluctuates between 1,500,000 and 2,000,000 francs.

There was very little income for the first years, and King Leopold sacrificed his private fortune in founding the State and supporting its administration during the early period. Now the revenues are increasing, but not faster than the expenses, and the King has had to continue his contributions, and is said to have incurred a debt of 16,000,000 francs in order to save the State from failure. Conferences between King Leopold and eminent public men of Belgium have taken place with regard to a change in the policy of the Belgian Government, which may have to make the Congo State a Belgian colony, or at least continue the contributions hitherto given by the King, in order to prevent it from passing into the hands of France in accordance with a clause in the boundary treaty securing to the republic the right to acquire the territory by purchase in case of the dissolution of the State, unless Belgium should elect to assume the dominion over it herself. Belgians view with satisfaction the enterprise in which their sovereign has sunk his private fortune, and hope for lucrative results for Belgian commerce; yet their statesmen have hitherto adhered to the principle that there shall be no closer connection between the two states than a personal union, and so jealous are some of the Liberals lest the Belgian Government should be drawn into a colonial policy which they regard as incompatible with its financial and international position that M. Jansen, deputy for Brussels, objected to granting a subsidy for the projected railroad.

The Congo Railroad.—The territory of the Congo State, described by Sir Francis de Winton as “the finest property in Central Africa,” depends entirely for its commercial value on the prospective railroad between Vivi, the head of navigation on the lower Congo, and Stanley Pool, where the river again becomes navigable. Without the railroad the Congo basin is, in the words of Henry M. Stanley, “not worth two shillings,” since, while it costs thirty-eight francs to ship a ton of merchandise from Antwerp to Vivi, the expense of transporting it on the heads of porters or on the backs of animals around the rapids to Leopoldville, two hundred miles above, is more than a thousand francs. The stoppage of the slave caravans on the east coast will tend to divert to the Congo route the ivory trade and all the commerce of Central Africa west of the great lakes. Above Stanley Pool there are a thousand miles of uninterrupted steam navigation on the Congo as far as Stanley Falls, and more than six times that distance on the great tributaries traversing productive regions. The profits of the Belgian *Compagnie de Congo pour le Commerce et l’Industrie*, which was formed under the auspices of the State, which is precluded by its Constitution from engaging in commerce, and the future revenues of the State itself depend on opening railroad communications. English capitalists, speculating on the financial necessities of the Congo State, formed a syndicate in November, 1885, and offered to build the railroad on terms that would have given them the control of the commerce. These conditions were refused, and the *Compagnie de Congo* undertook the work of surveying the route, raising a capital of 1,250,000 francs for this purpose. The statutes were drawn up in a form that al-

lowed the same company to construct and operate the railroad. The *Compagnie de Congo* was organized on Feb. 9, 1887, and on May 8 of that year engineers left for the Congo to begin the reconnaissance of the route. The mechanical work of the survey was performed by Houssas. The surveying party finished the observations at Stanley Pool in November, 1888.

The proposed railway is to start from Matadi, a little below Vivi, on the opposite side of the river, the last point on the Congo estuary where large vessels can unload. On leaving Matadi the route bends to the southeast, and keeps at an average distance of thirty miles from the river till it approaches Stanley Pool, in some places almost touching the Portuguese boundary. The railroad will have a narrow gauge. The locomotives will weigh thirty tons when loaded, and draw a load of fifty tons at the average rate of eleven miles an hour. The time of transit, which is a month by the existing methods of carriage, will be reduced to two days. Captain Cambier, who conducted the surveys, estimated that 25,000,000 francs would be sufficient for the construction of the railroad and its equipment and the payment of interest during the four years of construction. The operating expenses of the line when completed he computed at 1,200,000 francs per annum. Earnings of 2,450,000 francs per annum would therefore be sufficient to pay interest and expenses. The State, the missions, and the merchants already pay 2,500,000 francs yearly for transport over the same route. The export of rubber, which now barely repays the cost of carriage, would be one of the chief articles of commerce from the upper Congo region. The Belgian Chamber on July 23 voted to subscribe two fifths of the required capital, the Premier explaining that the subvention would establish no official relation between Belgium and the Congo State, but that it was required in the interest of Belgian commerce and industry. The Belgian state renounced all profits on its share of the capital, contenting itself with an annual interest of three and a half per cent., but exacted the condition that the rails and rolling stock should be of Belgian manufacture. The founders of the Congo State contributed one fifth of the capital. The remaining ten million francs were subscribed by the public in Brussels, in Berlin, and to a less extent in London.

The line, starting from Matadi on the lower Congo, and terminating at Kinshassa, on Stanley Pool, near Leopoldville, will have a length of 435 kilometres, or 294 miles. There will be no tunnel or steep gradient. The longest bridge will be that over the river Inkissi, of 100 metres span. The sharpest curves have a radius of 50 metres. The main engineering difficulties occur in the first section after leaving Matadi, where there are hills rising abruptly to an altitude of 250 metres, and much rock excavation is necessary, as well as considerable bridge and trestle work. To traverse a zone of 10 kilometres, the line takes a winding course of 26 kilometres. Beyond there is no elevation exceeding 100 or 125 metres above the valleys. There is brick clay and lime in abundance for the masonry. The rate of speed will vary from 12 kilometres an hour in the mountainous zone

to 30 kilometres on the easiest sections. There will be only one track, with sidings, and traffic will be carried on only in the day-time. On the other side of the mountain section the route passes through tropical forests so dense that the sunlight is never seen, then over a plain where elephants, buffaloes, and antelopes abound, which it leaves to follow the valley of the Lukunga, thickly peopled with prosperous commercial tribes, and next by a caravan road enters a less thriving, but still populous district where palm groves are encountered, runs for some distance through the wide Lucaya valley, where there is a different race of people, tattooed in many colors, and less friendly, and reaches Stanley Pool at Kinshassa. The highest level is at an elevation of 740 metres above the starting point. The company has received a concession of 655,000 hectares, in addition to 600 feet on each side of the track, and is promised by the Free State a subsidy of 20 per cent. on all sums realized by export duties. The first party of engineers and mechanics left Brussels in September to begin construction of the line, on which the labor will be done as far as possible by natives.

CONGREGATIONALISTS. I. Congregationalists in the United States.—The "Congregational Year-Book" for 1889 gives a summary of the statistics of the Congregational churches in the United States as follows:

Number of churches	4,569
Number of new churches	254
Number of members	475,608
Added on confession	25,994
Number of ministers in pastoral work	2,936
Without charge	1,422
Total	4,408
Increase	18,024
Baptisms, adult	8,328
Baptisms, infant	12,039
Sunday-schools, members	508,672
Sunday-schools, benevolent contributions	\$185,294
Benevolent contributions of the churches	2,205,563
Foreign missions	340,426
Education	140,533
Church building	113,072
Home missions	446,975
A. M. A.	157,666
Sunday-school	52,470
New West	45,817
Ministerial aid	112,705
Other objects	795,890
Charitable legacies paid	562,128
Home expenditures	4,973,889

Societies.—The object of the American Congregational Association is to preserve, improve, and promote the best use of the Congregational Library, and care for the Congregational House, which it owns. The cost to the association of this building was \$425,000. The library contains 27,503 volumes and more than 83,000 pamphlets and unbound periodicals.

The income of the American College and Education Society for the year ending April 30, 1888, was \$112,676, of which amount \$73,920 were contributed for colleges and paid to them. The sum of \$25,803 was paid to students fitting for the ministry. Two hundred and eighty students for the ministry were assisted during the year, and 7,456 aided since 1816.

The New West Education Commission, for the promotion of Christian civilization in Utah and adjacent Territories, returned for 1887-'88, 30 schools, with 68 teachers and 2,725 pupils, 855 of whom were Mormons, 830 apostates, and 171

Mexicans, and 1,976 pupils in Sunday-schools. Its receipts for the year had been \$65,752.

The seven theological seminaries—Andover, Bangor, Chicago, Hartford, Oberlin, Pacific, and Yale—returned for 1888-'89, 47 professors, 27 instructors or lecturers, 7 resident licentiates, 29 members of the advanced or graduate class, and 490 undergraduate students.

American Congregational Union.—The thirty-sixth annual meeting of the American Congregational Union was held in New York city, January 10. The Rev. Dr. William M. Taylor presided. The receipts of the society had been \$174,775, and were larger than had ever before been realized in a single year. The increase over the previous year in direct receipts for church building had been \$5,938, and in cash receipts for parsonage building, \$1,862. Aid had been given to 104 churches or houses of worship in the form of grants, loans, or special aid, and to 41 churches in the form of loans on parsonages; and aid had been voted to 99 churches and 53 parsonages. The Parsonage department is kept distinct from the Church-building department and has its own special Parsonage Loan fund, which had received during the year, \$14,755. Since 1882, 174 parsonages had been completed and paid for by its aid, while 32 more were in process of construction. Two hundred of the churches that had been aided by the Union had paid back to it all the sums they had ever received from it, and were still contributors to its funds.

American Home Missionary Society.—The sixty-third annual meeting of the American Home Missionary Society was held in Saratoga Springs, N. Y., June 14. The Rev. Edwin B. Webb, D. D., presided. The society had received from legacies and contributions \$379,546; and in packages of goods for distribution through the missionary box department, \$66,522. The auxiliaries had raised and expended in their respective fields \$162,705; these sums, with the balance from the previous year, the "Swett Exigency fund" of \$30,000, and a loan from bank of \$120,000, made the entire year's resources of the society \$701,495. The obligations had amounted to \$643,541, of which \$598,541 had been paid. Seventeen hundred and twenty-three missionary laborers had been employed in 42 States and Territories, supplying in full or preaching at stated intervals to 3,155 congregations. Eight of these missionaries had served colored people, and 175 had preached in foreign languages—17 to Welsh, 41 to German, 75 to Scandinavian, 22 to Bohemian, 2 to Polish, 1 to Chinese, 3 to Indian, 11 to French, and 3 to Mexican congregations. The number of pupils in Sunday-school and Bible classes was not far from 143,000. The organization of 293 new schools was reported, while the number of schools under the special care of the missionaries was 2,240. The contributions to benevolent objects reported by 813 missionaries amounted to \$38,107. One hundred and forty-four churches had been organized in connection with the labors of the missionaries, 115 houses of worship had been built, and 6,458 members had been added to the churches on confession of faith. Nine new State organizations of women's societies had been added to the list, making the pres-

ent number 29, in 31 States, with which 1,547 local auxiliaries were co-operating. Twenty-two missionaries had been employed among the immigrants. The representative in Georgia, besides the churches affiliated with this society and with the American Missionary Association, presented the case of forty-two churches that had been known as Congregational Methodist Churches. Within two years they had organized the United Congregational Conference of Georgia with provision for five distinct conferences, of which the churches and ministers should be constituent members. These churches were welcomed to fellowship. The society approved of efforts reported to be making to unite the Georgia Congregational Conference and the Georgia Congregational Association on principles of the equal recognition and fellowship of all the churches of each body, and expressed the hope that such a union would be accomplished.

National Congregational Council.—The seventh triennial session of the National Congregational Council met in Worcester, Mass., Oct. 9. President Cyrus Northrup, of the University of Minnesota, was chosen president. The secretary made a report showing that the membership of the Congregational churches had reached 475,608, indicating a gain of 57,044, a larger gain by almost 27,000 than had been reported in 1886. There were 4,568 churches, showing a gain of 399—chiefly in the Dakotas—the churches returning an average of 104 members each. The Sunday-schools showed a gain of 72,206 members in three years. The average amount of contributions per member for benevolent purposes, \$4.05 in 1886, was \$4.64 in 1889. A question arose concerning the admission of delegates claiming to represent two conferences in Georgia, the peculiar features of which were thus set forth in the report of the committee on credentials: "A body known as the Georgia United Conference, whose churches were also united in several local or district conferences, is the reorganization one year and a half ago of a body of Congregational Methodist churches which adopted our polity and declared its adherence to the creed set forth by our commission in 1884, in which reorganization original Congregational churches and Free Protestant Methodist churches were represented." Two of the five districts (all of which elected delegates) and the United or General Conference, which, however, was made up directly of delegates from all the churches, were represented at the council by one delegate each. Another body existed in Georgia, known as the Georgia Congregational Association, of fifteen churches, composed almost entirely of colored people, which had from the beginning been recognized by the National Council. The question whether two or more bodies of churches not united to one another by any formal band, or two bodies of churches somewhat overlapping each other in one territory could be recognized by the council, had already been settled affirmatively by precedent. In this case, however, it did not seem that the new churches held the position of a State organization contemplated by the rules of the council. The main objection to the admission of the new churches, lay, however, in the fact that the race question had been raised in regard to them.

They were composed entirely of white members, and no provision had been made for the maintenance of relations of fellowship between them and the churches composed chiefly of colored members. This condition was contrary to Congregational rule, which, as defined in the understanding between the American Home Missionary Society and the American Missionary Association, refuses aid to any church that will not admit to membership colored persons suitably qualified, or that will not fellowship the neighboring Congregational churches, or that will not unite with the local Congregational conference or association. The question was settled, on the technical assumption that there was no State body of Congregationalists in Georgia, by admitting the delegates representing local organizations, qualifying the act of admission by the declaration—

That this council reaffirms the historic position conceived to be characteristic of Congregationalism always, the equality of all brethren in Christ Jesus; and that we admit the before-named delegates of the Congregational conferences in Georgia to membership in this body, in the belief that they also stand with us on this ground; and in the expectation that they will use the uttermost of their endeavors at home to realize and manifest the fact in the promotion of organic union among all the Congregational churches of that commonwealth.

A committee was appointed to act in connection with committees appointed or to be appointed by the national Congregational benevolent societies in considering the relation of those societies to the churches, for the guidance of which, the council declared its opinion in favor of steps which, in due time, will make the societies the representatives of the churches. Another committee was appointed to confer with the societies with regard to simplifying their work, particularly in cases where the operations of any two or more of them may be covering the same or equivalent ground. In answer to an invitation from the Congregational Union of England and Wales to take part in an International Congregational Conference, a committee of twenty-five was appointed, together with the standing provisional committee of the council, to represent churches of the United States in such a body. Resolutions reported by the Committee on Christian Comity were adopted, declaring the multiplying of churches in towns and villages beyond the capacity of the people to sustain them, under the auspices of different ecclesiastical bodies which are essentially united in their faith and teaching, to be productive of deplorable evils, and indicating as a remedy for the evil the observance of the Christian rule of comity, which forbids one ecclesiastical body from interfering on the same ground with the work which another has undertaken and is faithfully prosecuting. A committee on Christian unity was appointed to communicate this expression to committees of the ecclesiastical bodies, with the request that such action may be taken by them and by the superintendents of missions in which they are interested as will prevent unnecessary interferences.

American Missionary Association.—The forty-third annual meeting of the American Missionary Association was held in Chicago, Ill.,

beginning Oct. 29. The Rev. William M. Taylor, D. D., presided. The total receipts for the year had been \$376,217; the expenditures, \$371,745. Of the latter sum, \$255,084 had been expended for church and educational work in the South; \$11,070 for the Chinese; \$51,781 for the Indians; and \$5,004 for foreign work (chiefly paid to the American Board from the Mendi fund). In addition to the regular receipts a gift of \$1,000,894 had been received from Mr. Daniel Hand, to be known as the Daniel Hand fund for the education of colored people, the income only of which was to be used. Of such income, \$30,999 had been received during the nine months ending Sept. 30. The agents of the society were laboring in nineteen States and Territories—six in the West and thirteen in the South. Five chartered institutions were sustained in the South—Fisk University, Nashville, Tenn., Talladega College, Alabama, Tougaloo University, Mississippi, Straight University, New Orleans, La., and Tiltonson Institute, Austin, Texas, all of which have normal departments; and besides these eighteen normal schools. Industrial training is given in most of the schools, whether chartered, normal, or common. Theological classes are taught at three of the chartered institutions and a theological department is supported by the association at Howard University, Washington, D. C. The whole number of schools in the South was 60; of instructors, 260; of pupils, 10,094. The Indian missions returned 68 missionaries, 18 schools, and 6 churches, one church having been added during the year; the sixteen Chinese missions, 35 workers, 10 of them Chinese, 1,380 pupils in schools, and more than 750 converts, 40 of whom had made profession during the year.

The association, according to statements made by Dr. Strieby, its secretary, is a representative body in the control of which life members and delegates from the churches, local conferences, and State associations have the controlling voice. Its work embraces all forms of effort in the church and the school, and is intended to extend to all races of men; and it maintains as a condition of fellowship "that a Christian church should stand ready to fellowship any one whom Christ fellowships."

American Board.—The eightieth annual meeting of the American Board of Commissioners for Foreign Missions was held in New York, beginning Oct. 14. The Rev. R. S. Storrs, D. D., presided. The total receipts for the year had been \$686,001, and the expenditures \$685,153. The values of the several funds and investments of the society were returned as follow: Legacy of Asa Otis, appraised value of securities now held, \$202,593; amount expended during the year for new missions, \$43,665; legacy of Samuel W. Swett, amount expended, \$82,111; balance remaining, \$108,078; "Morning Star" fund for repairs of the vessel—expended, \$4,927; balance left, \$5,698; General Permanent fund, \$215,487; Permanent Fund for Officers, \$59,608, of which the income, \$3,474 had been applied to salaries; Mission Scholarship fund, \$3,745; C. Merriam Female Scholarship fund, \$3,000; Euphrates College Female Teachers' fund, \$2,500; Hollis Moore Trust, \$5,000; William White Smith fund, \$35,000; Anatolia College Endowment fund,

\$4,604. The "General Summary" of the condition of the missions in papal lands, European Turkey, India, Japan, Asia Minor, China, Africa, and the Pacific islands, gives the following totals:

MISSIONS.	
Missions	22
Stations	98
Out-stations	1,023
Places for stated preaching	1,069
Average congregations	63,664

LABORERS EMPLOYED.	
Ordained missionaries (11 being physicians)...	177
Male physicians not ordained (besides 7 women).....	11
Other male assistants	6
Women (7 of them physicians—wives, 176; unmarried, 138).....	814
Whole number of laborers sent from this country	508
Native pastors	174
Native preachers and catechists	510
Native school-teachers	1,372
Other native helpers	327
Whole number of laborers connected with the missions.....	2,591

CHURCHES.	
Churches	358
Church-members	33,099
Added during the year	4,529
Whole number from the first	110,006

EDUCATIONAL DEPARTMENT.	
Theological seminaries and station classes.....	14
Pupils	227
Colleges and high schools	66
Pupils in the above	4,320
Boarding schools for girls	53
Pupils in boarding schools for girls	3,212
Common schools	932
Pupils in common schools	34,647
Whole number under instruction	43,313
Native contributions	\$116,253

The Committee of Fifteen, appointed at the previous meeting of the board to consider and report upon the relation of the board to the churches and individuals who make it their missionary agent, and the expediency of securing a closer union between them, "especially including the subject of the selection of corporate members," reported that to 1,593 circulars which it had sent to churches contributing during 1888 \$25 or more to the board and to corporate members of the board and professors in theological seminaries it had received 570 replies, of which 325 were in favor of some change, 206 were opposed to any change, and 39 embodied no expression of opinion on the subject. A great variety of judgment was revealed by the correspondence, with uncertainty and indefiniteness of opinion; and there were so many supporters of change who gave doubtful and qualified opinions that, if their votes were counted separately, the majority would appear on the side of the opposition. The committee was therefore of the opinion that the time had not yet come to make a change in the methods of election to corporate membership; but it was agreed, in making the recommendation, that the president and vice-president of the board be constituted *ex officio* members of the Prudential Committee. This was unanimously adopted by the board, and the committee was continued. A committee of nine members was appointed to inquire into the methods of administration pursued at the missionary rooms in Boston, to recommend any changes which might seem to them

needful or important, and to report to a subsequent meeting of the board. A vote of thanks was given to the Hon. Oscar F. Strauss, late United States Minister in Turkey, "for his efficient services in defense of the rights and liberties of American citizens in the Turkish Empire."

II. Congregationalists in British America.—The Congregationalists of Nova Scotia and New Brunswick have, according to the "Canadian Congregational Year-Book" for 1888-'89, 20 churches, furnishing 5,160 sittings, with church property, including parsonages, valued at \$80,950. In Ontario they have 76 churches, with 22,982 sittings, and \$474,000 of property; in Quebec, 15 churches, with 4,740 sittings, and a valuation of \$150,400; and in Manitoba, 1 church, having 1,000 sittings, and property valued at \$28,700. The united contributions of the churches of the provinces were: For local church objects, \$100,682; for the Union, \$575; for the Canadian Congregational Missionary Society, \$3,942; for the College of British North America, \$2,946; for foreign, Indian, and French missions, \$2,205; for other denominational objects, \$2,423 (in Ontario and Quebec); for general benevolent purposes, \$2,364. The amount of contributions returned for all purposes was \$131,333. At the meeting of the Congregational Union of Nova Scotia and New Brunswick, held in Yarmouth, Nova Scotia, in July, 1888, the statistical secretary returned the number of members as 1,199, and of pupils in Sunday-schools as 993, they being under the instruction of 133 teachers. Twelve pastors were preaching at 50 churches and preaching places to 1,995 hearers, and reckoned 2,100 persons under their pastoral care. The accounts of the Congregational Union of Ontario and Quebec for 1887-'88 were balanced at \$605; while \$218 stood to the credit of the "Bain bequest." The statistical secretary's report, made at the meeting of the Union in Montreal in June, 1888, gave the following numbers: Of pastors in office, 61; of stations, not churches, 46; of preaching stations on the Lord's Day, 117; of members, 7,871; average attendance on Sunday service, 15,589; whole number under pastoral care, 19,906; of admissions during the year by profession, 625; of baptisms, 54 of adults, and 560 of infants; of Sunday-schools, 92, with 948 officers and teachers, 7,634 pupils on the roll, and an average attendance of 5,515. The receipts of the Congregational Missionary Society for 1887-'88 were \$4,002 from contributions; while the entire receipts and expenditures were balanced at \$10,668. The society has trust funds, including a Church Extension and Building fund of \$2,471, amounting in all to \$16,641. Thirty-four missionaries had been employed, together with 13 students during their vacation. The Canada Congregational Woman's Board of Missions contributed to the support of a missionary at Bombay, India, and of a student at Euphrates College, Turkey; and co-operated with the Canadian Home and Foreign Missionary societies. The Ladies' Home Missionary Society of Nova Scotia and New Brunswick had received on its various accounts \$322. The Congregational Provident fund returned \$12,629 as the net capital of the Widows' and Orphans' branch, and \$4,705 of as-

sets in the Retiring Ministers' branch. Its receipts for the year ending May 31, 1888, had been \$5,017 in the former, and \$323 in the latter branch. The accounts of the Congregational College of British North America for the year were balanced at \$7,426. Nineteen students had been in attendance. The list of alumni contained 100 names. The receipts of the Canada Congregational Foreign Missionary Society for 1887-'88 were \$3,456. Its principal mission is in Africa, where one missionary had been exploring the country to the north, east, and south of Bailundu and Bihé. A weekly newspaper, "The Canadian Independent," is published at Toronto.

III. Congregationalists in Great Britain.—The fifty-seventh annual meeting of the Congregational Union of England and Wales was held in London, May 6. The Rev. Thomas Green was elected chairman for the year. The report referred to the measures that had been adopted to celebrate in 1888 the bicentenary of the English revolution, mentioned the successful establishment of the publishing department, and reported progress in the establishment of Young People's Guilds and the organization of the National Council of Congregational churches. The Sunday-school statistics showed the number of pupils to be 703,611, and of teachers 68,270. A correspondence had been carried on with the London Missionary Society with respect to measures for bringing the churches into closer relations with the society. Acting upon the recommendation of the Congregational Jubilee meeting in Victoria, Australia, the meeting decided that a general council of the Congregational churches should be convened in London at an early date in which the Baptists should be invited to join.

The Colonial Missionary Society had received £3,948 from all sources. Representations were made at the annual meeting, the fifty-third, May 9, of its work in building up churches in British Columbia, South Africa, Australia, New Zealand, and Canada.

London Missionary Society.—The ninety-fifth annual meeting of the London Missionary Society was held in London, May 9. Mr. Samuel Smith, M. P., presided. The total income for the year had been £125,250, and the expenditure £122,596. The report referred to troubles with the French Government in Maré, which still refused to investigate into the case of the Rev. John Jones. In consequence of the French authorities taking the education of the children out of their hands, it had been felt necessary to abandon the Leeward and Loyalty islands; but the Evangelical Missionary Society of Paris was preparing gradually to take over the work.

The Congregational Church Aid Society had been ten years in existence. In 1879 it had aided 514 churches and 126 evangelistic or mission stations. In 1888 the number had increased to 786 churches and 412 evangelistic stations. The average stipends of pastors aided by the society had been raised from less than £100 to £106. The numbers in congregations had increased from 81,773 to 102,683. The income of the society remained stationary at about £25,000. The village churches were represented as suffering from the rural poverty.

Autumnal Meeting of the Congregational Union.—The Union met in its autumnal session at Hull, Oct. 1. The Rev. Dr. Falding occupied the chair. A letter was read from the Archbishop of Canterbury transmitting the resolutions of the Lambeth Conference on "home reunion," proposing a union of denominational organizations with the Church of England on the bases of the Holy Scriptures as being the rule and ultimate standard of faith, the Apostles' and Nicene Creeds, the sacraments of baptism and the Lord's Supper, and the historic episcopate.* In the reply to the archbishop's letter which it adopted, the Union, recognizing and reciprocating the spirit of good-will and Christian courtesy that prompted the overture, declared that the question to which it related was one of deep interest to the Congregational churches, ministers, and members; expressed a feeling of satisfaction over every movement in other communions toward catholicity of feeling and conduct, and its own readiness to cultivate the same; deplored the divisions among the churches; hoped that the time might not be distant when, "as the result of candid and prayerful conference, those divisions, in spite of any outward differences that may remain, will cease to break the unity of the spirit." For such conferences the Congregational churches were fully prepared; and an arrangement was suggested for meetings at which members of the Established Church and nonconformists should unite in the various offices of worship, and in deliberation on practical measures of co-operation in the common service of the Christian faith as a seemly preparation for a conference on the question of organic union. Regarding the Lambeth invitation as looking directly or ultimately toward organic union, the reply intimated that the open, habitual recognition of the churches by one another as equally churches under Christ, constituting a unity in diversity, would be a nearer approach to real unity than any form of ecclesiastical incorporation possible under present conditions. The bases laid down by the bishops presented aspects of difficulty to Congregationalists. The fourth article—

could only be regarded as an insuperable obstacle in the way of conference. What that article proposes is that the Congregational churches abandon their distinctive testimony, and accept, not union with a sister church, but incorporation into a system against which they have been an historical and continuous protest. There is a sense in which we not only hold the "historic episcopate," but maintain that it is fully realized in our midst and by our churches. Our pastors are bishops, and we strenuously affirm and teach that their "episcopate" is at once primitive and historical, i. e., after the form instituted of Christ, observed and enjoined by his apostles. This office our pastors hold by divine authority, and through divine appointment, their institution being of Christ, who

acts through the voice and election of the churches, whose one and common Head he is. This view of the episcopate is our historical inheritance, and we construe it as no mere matter of polity or ritual, but as of the essence or nature of the Church, necessary to its complete dependence on Christ, and involving its no less complete independence of the state. This conception of the Church, held as a matter of deep and settled conviction by Congregationalists, and derived as they believe from the New Testament, is the very thing it is here proposed that they surrender as a condition preliminary to a conference on "home reunion." This is a surrender they can not make, and ought not to be expected to be able to make; and we therefore feel compelled to decline a conference which would allow such a surrender to seem possible.

The paper further enunciated the hope that the archbishop's letter might be the beginning of happier relations among the churches of England. A committee that had been appointed to confer with the directors of the London Missionary Society with reference to its closer association with the Congregational churches reported that it was deemed unadvisable to introduce any change into the title of the society that would give it an express denominational character: but recommended a direct representation of the county associations on the board of directors, representation of the Missionary Society on the platforms of county associations, united devotional conferences, and recognition of the claims of the society at the meetings of the Union. The celebration of a founders' week was also proposed. A resolution was passed expressing the conviction that the time has come when immediate steps should be taken by the Legislature for the disestablishment and disendowment of the churches in Wales and Scotland; and that "the time is opportune for preparing the mind of the nation by the active dissemination of knowledge on the subject, for the active discussion, at an early day, in regard to the Established Church of England." A resolution was adopted protesting against the proposed establishment and endowment from imperial resources of a Roman Catholic university in Ireland. It recited that—

The Union has always contended that the state should neither inflict disability nor confer distinction or benefit on any subjects of the Queen, on religious grounds. It has, therefore, earnestly striven for the removal of all disabilities under which Roman Catholics or Christians of other communions lay, for the disestablishment and disendowment of privileged state churches, and for the exclusion of religion from the provision made by the state for the education of the people. The proposal of the Government to establish a denominational university in Ireland is part of a policy which the Union has thus always opposed, and which it still regards as detrimental at once to the interests of religion and to the civil interests of the nation; and the assembly trusts that the nonconformists of the country will unite as one man to thwart it.

Congregational College at Oxford.—Mansfield College, a theological seminary for nonconformists, in affiliation with the University of Oxford, was opened in that city on the 14th of October, with a sermon by the Rev. R. W. Dale, D. D., and an inaugural address by the Rev. Principal Fairbairn, chief of its faculty. The services and reunions were participated in by many members of the university, among whom were eight heads of colleges.

* The exact language employed in the proposition was: "1. The Holy Scriptures of the Old and New Testaments, as 'containing all things necessary to salvation,' and as being the rule and ultimate standard of faith. 2. The Apostles' Creed as the baptismal symbol, and the Nicene Creed as the sufficient statement of the Christian faith. 3. The two sacraments ordained by Christ himself—baptism and the Supper of the Lord—ministered with unfailing use of Christ's words of institution, and of the elements ordained by him. 4. The historic episcopate, locally adapted in the methods of its administration to the varying needs of the nations and peoples called of God into the unity of his Church."

CONGRESS OF THE UNITED STATES.

The second session of the Fiftieth Congress convened on Monday, Dec. 3, 1888; and the President sent in his fourth annual message, as follows:

To the Congress of the United States:

As you assemble for the discharge of the duties you have assumed as the representatives of a free and generous people, your meeting is marked by an interesting and impressive incident. With the expiration of the present session of the Congress the first century of our constitutional existence as a nation will be completed.

Our survival for one hundred years is not sufficient to assure us that we no longer have dangers to fear in the maintenance, with all its promised blessings, of a government founded upon the freedom of the people. The time rather admonishes us to soberly inquire whether in the past we have always closely kept in the course of safety, and whether we have before us a way plain and clear which leads to happiness and perpetuity.

When the experiment of our Government was undertaken, the chart adopted for our guidance was the Constitution. Departure from the lines there laid down is failure. It is only by a strict adherence to the direction they indicate and by restraint within the limitations they fix that we can furnish proof to the world of the fitness of the American people for self-government.

The equal and exact justice of which we boast as the underlying principle of our institutions should not be confined to the relations of our citizens to each other. The Government itself is under bond to the American people that in the exercise of its functions and powers it will deal with the body of our citizens in a manner scrupulously honest and fair and absolutely just. It has agreed that American citizenship shall be the only credential necessary to justify the claim of equality before the law, and that no condition in life shall give rise to discrimination in the treatment of the people by their Government.

The citizen of our republic in its early days rigidly insisted upon full compliance with the letter of this bond, and saw stretching out before him a clear field for individual endeavor. His tribute to the support of his Government was measured by the cost of its economical maintenance, and he was secure in the enjoyment of the remaining recompense of his steady and contented toil. In those days the frugality of the people was stamped upon their Government, and was enforced by the free, thoughtful, and intelligent suffrage of the citizen. Combinations, monopolies, and aggregations of capital were either avoided or sternly regulated and restrained. The pomp and glitter of governments less free offered no temptation and presented no delusion to the plain people who, side by side, in friendly competition wrought for the ennoblement and dignity of man, for the solution of the problem of free government, and for the achievement of the grand destiny awaiting the land which God had given them.

A century has passed. Our cities are the abiding places of wealth and luxury; our manufactories yield fortunes never dreamed of by the fathers of the republic; our business men are madly striving in the race for riches, and immense aggregations of capital outrun the imagination in the magnitude of their undertakings.

We view with pride and satisfaction this bright picture of our country's growth and prosperity, while only a closer scrutiny develops a somber shading. Upon more careful inspection we find the wealth and luxury of our cities mingled with poverty and wretchedness and unremunerative toil. A crowded and constantly increasing urban population suggests the impoverishment of rural sections and discontent with agricultural pursuits. The farmer's son, not satisfied with his father's simple and laborious life, joins the eager chase for easily acquired wealth.

We discover that the fortunes realized by our manufacturers are no longer solely the reward of sturdy industry and enlightened foresight, but that they result from the discriminating favor of the Government, and are largely built upon undue exactions from the masses of our people. The gulf between employers and the employed is constantly widening and classes are rapidly forming, one comprising the very rich and powerful, while in another are found the toiling poor.

As we view the achievements of aggregated capital, we discover the existence of trusts, combinations, and monopolies, while the citizen is struggling far in the rear or is trampled to death beneath an iron heel. Corporations which should be the carefully restrained creatures of the law and the servants of the people, are fast becoming the people's masters.

Still congratulating ourselves upon the wealth and prosperity of our country, and complacently contemplating every incident of change inseparable from these conditions, it is our duty as patriotic citizens to inquire, at the present stage of our progress, how the bond of the Government made with the people has been kept and performed.

Instead of limiting the tribute drawn from our citizens to the necessities of its economical administration, the Government persists in exacting, from the substance of the people, millions which, unapplied and useless, lie dormant in its Treasury. This flagrant injustice, and this breach of faith and obligation, add to extortion the danger attending the diversion of the currency of the country from the legitimate channels of business.

Under the same laws by which these results are produced, the Government permits many millions more to be added to the cost of the living of our people and to be taken from our consumers, which unreasonably swell the profits of a small but powerful minority.

The people must still be taxed for the support of the Government under the operation of tariff laws. But to the extent that the mass of our citizens are inordinately burdened beyond any useful public purpose, and for the benefit of a favored few, the Government, under pretext of an exercise of its taxing power, enters gratuitously into partnership with these favorites to their advantage and to the injury of a vast majority of our people.

This is not equality before the law.

The existing situation is injurious to the health of our entire body politic. It stifles, in those for whose benefit it is permitted, all patriotic love of country, and substitutes in its place selfish greed and grasping avarice. Devotion to American citizenship for its own sake and for what it should accomplish as a motive to our nation's advancement and the happiness of all our people is displaced by the assumption that the Government, instead of being the embodiment of equality, is but an instrumentality through which special and individual advantages are to be gained.

The arrogance of this assumption is unconcealed. It appears in the sordid disregard of all but personal interests, in the refusal to abate for the benefit of others one iota of selfish advantage, and in combinations to perpetuate such advantages through efforts to control legislation and improperly influence the suffrages of the people.

The grievances of those not included within the circle of these beneficiaries, when fully realized, will surely arouse irritation and discontent. Our farmers, long suffering and patient, struggling in the race of life with the hardest and most unremitting toil, will not fail to see, in spite of misrepresentations and misleading fallacies, that they are obliged to accept such prices for their products as are fixed in foreign markets where they compete with the farmers of the world; that their lands are declining in value while their debts increase; and that without compensating favor they are forced by the action of the Government to pay for the benefit of others such enhanced prices for the things they need that the scanty returns of their labor fail to furnish their support or leave no margin for accumulation.

Our workingmen, enfranchised from all delusions and no longer frightened by the cry that their wages are endangered by a just revision of our tariff laws, will reasonably demand through such revision steadier employment, cheaper means of living in their homes, freedom for themselves and their children from the doom of perpetual servitude, and an open door to their advancement beyond the limits of a laboring class. Others of our citizens whose comforts and expenditures are measured by moderate salaries and fixed incomes will insist upon the fairness and justice of cheapening the cost of necessities for themselves and their families.

When to the selfishness of the beneficiaries of unjust discrimination under our laws there shall be added the discontent of those who suffer from such discrimination, we will realize the fact that the beneficent purposes of our Government, dependent upon the patriotism and contentment of our people, are endangered.

Communism is a hateful thing, and a menace to peace and organized government. But the communism of combined wealth and capital, the outgrowth of overweening cupidity and selfishness, which insidiously undermines the justice and integrity of free institutions, is not less dangerous than the communism of oppressed poverty and toil which, exasperated by injustice and discontent, attacks with wild disorder the citadel of rule.

He mocks the people who proposes that the Government shall protect the rich and that they in turn will care for the laboring poor. Any intermediary between the people and their Government, or the least delegation of the care and protection the Government owes to the humblest citizen in the land, makes the boast of free institutions a glittering delusion and the pretended boon of American citizenship a shameful imposition.

A just and sensible revision of our tariff laws should be made for the relief of those of our countrymen who suffer under present conditions. Such a revision should receive the support of all who love that justice and equality due to American citizenship, of all who realize that in this justice and equality our Government finds its strength and its power to protect the citizen and his property, of all who believe that the contented competence and comfort of many accord better with the spirit of our institutions than colossal fortunes unfairly gathered in the hands of a few, of all who appreciate that the forbearance and fraternity among our people which recognize the value of every American interest, are the surest guarantee of our national progress, and of all who desire to see the products of American skill and ingenuity in every market of the world with a resulting restoration of American commerce.

The necessity of the reduction of our revenue is so apparent as to be generally conceded. But the means by which this end shall be accomplished and the sum of direct benefit which shall result to our citizens present a controversy of the utmost importance. There should be no scheme accepted as satisfactory by which the burdens of the people are only apparently removed. Extravagant appropriations of public money, with all their demoralizing consequences, should not be tolerated, either as a means of relieving the Treasury of its present surplus or as furnishing pretext for resisting a proper reduction in tariff rates. Existing evils and injustice should be honestly recognized, boldly met, and effectively remedied. There should be no cessation of the struggle until a plan is perfected, fair and conservative toward existing industries, but which will reduce the cost to consumers of the necessities of life, while it provides for our manufacturers the advantage of freer raw materials and permits no injury to the interests of American labor.

The cause for which the battle is waged is comprised within lines clearly and distinctly defined. It should never be compromised. It is the people's cause.

It can not be denied that the selfish and private interests which are so persistently heard, when efforts

are made to deal in a just and comprehensive manner with our tariff laws, are related to, if they are not responsible for, the sentiment largely prevailing among the people that the General Government is the fountain of individual and private aid; that it may be expected to relieve with paternal care the distress of citizens and communities, and from the fullness of its Treasury it should, upon the slightest possible pretext of promoting the general good, apply public funds to the benefit of localities and individuals. Nor can it be denied that there is a growing assumption that, as against the Government and in favor of private claims and interests, the usual rules and limitations of business principles and just dealing should be waived.

These ideas have been unhappily much encouraged by legislative acquiescence. Relief from contracts made with the Government is too easily accorded in favor of the citizen; the failure to support claims against the Government by proof is often supplied by no better consideration than the wealth of the Government and the poverty of the claimant; gratuities in the form of pensions are granted upon no other real ground than the needy condition of the applicant or for reasons less valid; and large sums are expended for public buildings and other improvements upon representations scarcely claimed to be related to public needs and necessities.

The extent to which the consideration of such matters subordinates and postpones action upon subjects of great public importance, but involving no special, private, or partisan interest, should arrest attention and lead to reformation.

A few of the numerous illustrations of this condition may be stated.

The crowded condition of the calendar of the Supreme Court, and the delay to suitors and denial of justice resulting therefrom, have been strongly urged upon the attention of the Congress, with a plan for the relief of the situation approved by those well able to judge of its merits. While this subject remains without effective consideration many laws have been passed providing for the holding of terms of inferior courts at places to suit the convenience of localities or to lay the foundation of an application for the erection of a new public building.

Repeated recommendations have been submitted for the amendment and change of the laws relating to our public lands so that their spoliation and diversion to other uses than as homes for honest settlers might be prevented. While a measure to meet this conceded necessity of reform remains awaiting the action of the Congress many claims to the public lands and applications for their donation in favor of States and individuals have been allowed.

A plan in aid of Indian management recommended by those well informed, as containing valuable features in furtherance of the solution of the Indian problem, has thus far failed of legislative sanction, while grants of doubtful expediency to railroad corporations, permitting them to pass through Indian reservations, have greatly multiplied.

The propriety and necessity of the erection of one or more prisons for the confinement of United States convicts, and a post-office building in the national capital, are not disputed. But these needs yet remain unanswered, while scores of public buildings have been erected where their necessity for public purposes is not apparent.

A revision of our pension laws could easily be made which would rest upon just principles and provide for every worthy applicant. But, while our general pension laws remain confused and imperfect, hundreds of private pension laws are annually passed, which are the sources of unjust discrimination and popular demoralization.

Appropriation bills for the support of the Government are defaced by items and provisions to meet private ends, and it is freely asserted by responsible and experienced parties that a bill appropriating money for public internal improvement would fail to meet

with favor, unless it contained items more for local and private advantage than for public benefit.

These statements can be much emphasized by an ascertainment of the proportion of Federal legislation which either bears upon its face its private character, or which, upon examination, develops such a motive power.

And yet the people wait and expect from their chosen representatives such patriotic action as will advance the welfare of the entire country; and this expectation can only be answered by the performance of public duty with unselfish purpose. Our mission among the nations of the earth, and our success in accomplishing the work God has given the American people to do, require of those intrusted with the making and execution of our laws perfect devotion, above all other things, to the public good.

This devotion will lead us to strongly resist all impatience of constitutional limitations of Federal power, and to persistently check the increasing tendency to extend the scope of Federal legislation into the domain of State and local jurisdiction, upon the plea of subserving the public welfare. The preservation of the partitions between proper subjects of Federal and local care and regulation is of such importance under the Constitution, which is the law of our very existence, that no consideration of expediency or sentiment should tempt us to enter upon doubtful ground. We have undertaken to discover and proclaim the richest blessings of a free government, with the Constitution as our guide. Let us follow the way it points out. It will not mislead us. And surely no one who has taken upon himself the solemn obligation to support and preserve the Constitution can find justification or solace for disloyalty in the excuse that he wandered and disobeyed in search of a better way to reach the public welfare than the Constitution offers.

What has been said is deemed not inappropriate at a time when, from a century's height, we view the way already trod by the American people, and attempt to discover their future path.

The seventh President of the United States—the soldier and statesman, and at all times the firm and brave friend of the people—in vindication of his course as the protector of popular rights and the champion of true American citizenship, declared:

“The ambition which leads me on is an anxious desire and a fixed determination to restore to the people, unimpaired, the sacred trust they have confided to my charge; to heal the wounds of the Constitution and to preserve it from further violation; to persuade my countrymen, so far as I may, that it is not in a splendid government supported by powerful monopolies and aristocratical establishments that they will find happiness, or their liberties protection, but in a plain system, void of pomp—protecting all and granting favors to none—dispensing its blessings like the dews of heaven, unseen and unfelt save in the freshness and beauty they contribute to produce. It is such a government that the genius of our people requires—such a one only under which our States may remain, for ages to come, united, prosperous, and free.”

In pursuance of a constitutional provision requiring the President, from time to time, to give to the Congress information of the state of the Union, I have the satisfaction to announce that the close of the year finds the United States in the enjoyment of domestic tranquillity and at peace with all the nations.

Since my last annual message our foreign relations have been strengthened and improved by performance of international good offices and by new and renewed treaties of amity, commerce, and reciprocal extradition of criminals.

Those international questions which still await settlement are all reasonably within the domain of amicable negotiation, and there is no existing subject of dispute between the United States and any foreign power that is not susceptible of satisfactory adjustment by frank diplomatic treatment.

The questions between Great Britain and the United States relating to the rights of American fishermen,

under treaty and international comity, in the territorial waters of Canada and Newfoundland, I regret to say are not yet satisfactorily adjusted.

These matters were fully treated in my message to the Senate of Feb. 20, 1888, together with which a convention, concluded under my authority with Her Majesty's Government on the 15th of February last, for the removal of all causes of misunderstanding, was submitted by me for the approval of the Senate.

This treaty having been rejected by the Senate, I transmitted a message to the Congress, on the 23d of August last, reviewing the transactions and submitting for consideration certain recommendations for legislation concerning the important questions involved.

Afterward, on the 12th of September, in response to a resolution of the Senate, I again communicated fully all the information in my possession as to the action of the Government of Canada affecting the commercial relations between the Dominion and the United States, including the treatment of American fishing-vessels in the ports and waters of British North America.

These communications have all been published, and therefore opened to the knowledge of both Houses of Congress, although two were addressed to the Senate alone.

Comment upon or repetition of their contents would be superfluous, and I am not aware that anything has since occurred which should be added to the facts therein stated. Therefore, I merely repeat, as applicable to the present time, the statement which will be found in my message to the Senate of Sept. 12 last:

“That since March 3, 1887, no case has been reported to the Department of State wherein complaint has been made of unfriendly or unlawful treatment of American fishing-vessels on the part of the Canadian authorities, in which reparation was not promptly and satisfactorily obtained by the United States consul-general at Halifax.”

Having essayed, in the discharge of my duty, to procure by negotiation the settlement of a long-standing cause of dispute, and to remove a constant menace to the good relations of the two countries, and continuing to be of opinion that the treaty of February last, which failed to receive the approval of the Senate, did supply “a satisfactory, practical, and final adjustment upon a basis honorable and just to both parties of the difficult and vexed question to which it related,” and having subsequently and unavailingly recommended other legislation to Congress which I hoped would suffice to meet the exigency created by the rejection of the treaty, I now again invoke the earnest and immediate attention of the Congress to the condition of this important question, as it now stands before them and the country, and for the settlement of which I am deeply solicitous.

Near the close of the month of October last occurrences of a deeply regrettable nature were brought to my knowledge, which made it my painful but imperative duty to obtain, with as little delay as possible, a new personal channel of diplomatic intercourse in this country with the Government of Great Britain.

The correspondence in relation to this incident will in due course be laid before you, and will disclose the unpardonable conduct of the official referred to in his interference by advice and counsel with the suffrages of American citizens in the very crisis of the Presidential election then near at hand, and also in his subsequent public declarations to justify his action, superadding impugning of the Executive and Senate of the United States, in connection with important questions now pending in controversy between the two Governments.

The offense thus committed was most grave, involving disastrous possibilities to the good relations of the United States and Great Britain, constituting a gross breach of diplomatic privilege and an invasion of the purely domestic affairs and essential sovereignty of the Government to which the envoy was accredited.

Having first fulfilled the just demands of international comity by affording full opportunity for Her

Majesty's Government to act in relief of the situation, I considered prolongation of discussion to be unwarranted and thereupon declined to further recognize the diplomatic character of the person, whose continuance in such function would destroy that mutual confidence which is essential to the good understanding of the two Governments, and was inconsistent with the welfare and self-respect of the Government of the United States.

The usual interchange of communication has since continued through Her Majesty's legation in this city.

My endeavors to establish by international co-operation measures for the prevention of the extermination of fur-seals in Behring Sea have not been relaxed, and I have hopes of being enabled shortly to submit an effective and satisfactory conventional *projet* with the maritime powers for the approval of the Senate.

The coastal boundary between our Alaskan possessions and British Columbia, I regret to say, has not received the attention demanded by its importance, and which on several occasions heretofore I have had the honor to recommend to the Congress.

The admitted impracticability, if not impossibility, of making an accurate and precise survey and demarkation of the boundary line, as it is recited in the treaty with Russia under which Alaska was ceded to the United States, renders it absolutely requisite, for the prevention of international jurisdictional complications, that adequate appropriation for a reconnaissance and survey to obtain proper knowledge of the locality and the geographical features of the boundary should be authorized by Congress with as little delay as possible.

Knowledge to be only thus obtained is an essential prerequisite for negotiation for ascertaining a common boundary, or as preliminary to any other mode of settlement.

It is much to be desired that some agreement should be reached with Her Majesty's Government by which the damages to life and property on the Great Lakes may be alleviated by removing or humanely regulating the obstacles to reciprocal assistance to wrecked or stranded vessels.

The act of June 19, 1878, which offers to Canadian vessels free access to our inland waters in aid of wrecked or disabled vessels, has not yet become effective through concurrent action by Canada.

The due protection of our citizens of French origin or descent, from claim of military service in the event of their returning to or visiting France, has called forth correspondence which was laid before you at the last session.

In the absence of conventional agreement as to naturalization, which is greatly to be desired, this Government sees no occasion to recede from the sound position it has maintained, not only with regard to France but as to all countries with which the United States have not concluded special treaties.

Twice within the last year has the imperial household of Germany been visited by death; and I have hastened to express the sorrow of this people, and their appreciation of the lofty character of the late aged Emperor William, and their sympathy with the heroism under suffering of his son, the late Emperor Frederick.

I renew my recommendation of two years ago for the passage of a bill for the refunding to certain German steamship lines of the interest upon tonnage dues illegally exacted.

On the 12th of April last I laid before the house of Representatives full information respecting our interests in Samoa; and in the subsequent correspondence on the same subject, which will be laid before you in due course, the history of events in those islands will be found.

In a message accompanying my approval, on the 1st day of October last, of a bill for the exclusion of Chinese laborers, I laid before Congress full information and all correspondence touching the negotiation of the treaty with China, concluded at this capital on

the 12th day of March, 1888, and which, having been confirmed by the Senate with certain amendments, was rejected by the Chinese Government. This message contained a recommendation that a sum of money be appropriated as compensation to Chinese subjects who had suffered injuries at the hands of lawless men within our jurisdiction. Such appropriation having been duly made, the fund awaits reception by the Chinese Government.

It is sincerely hoped that by the cessation of the influx of this class of Chinese subjects, in accordance with the expressed wish of both Governments, a cause of unkind feeling has been permanently removed.

On the 9th of August, 1887, notification was given by the Japanese minister at this capital of the adjournment of the conference for the revision of the treaties of Japan with foreign powers, owing to the objection of his Government to the provision in the draft of a jurisdictional convention which required the submission of the criminal code of the Empire to the powers in advance of its becoming operative. This notification was, however, accompanied with an assurance of Japan's intention to continue the work of revision.

Notwithstanding this temporary interruption of negotiations, it is hoped that improvements may soon be secured in the jurisdictional system as respects foreigners in Japan, and relief afforded to that country from the present undue and oppressive foreign control in matters of commerce.

I earnestly recommend that relief be provided for the injuries accidentally caused to Japanese subjects in the Island Iikisima by the target practice of one of our vessels.

A diplomatic mission from Corea has been received, and the formal intercourse between the two countries contemplated by the treaty of 1882 is now established.

Legislative provision is hereby recommended to organize and equip consular courts in Corea.

Persia has established diplomatic representation at this capital and has evinced very great interest in the enterprise and achievements of our citizens. I am, therefore, hopeful that beneficial commercial relations between the two countries may be brought about.

I announce with sincere regret that Hayti has again become the theatre of insurrection, disorder, and bloodshed. The titular government of President Saloman has been forcibly overthrown and he driven out of the country to France, where he has since died.

The tenure of power has been so unstable amid the war of factions that has ensued since the expulsion of President Saloman that no government constituted by the will of the Haytian people has been recognized as administering responsibly the affairs of that country. Our representative has been instructed to abstain from interference between the warring factions, and a vessel of our navy has been sent to Haytian waters to sustain our minister and for the protection of the persons and property of American citizens.

Due precautions have been taken to enforce our neutrality laws and prevent our territory from becoming the base of military supplies for either of the warring factions.

Under color of a blockade, of which no reasonable notice had been given, and which does not appear to have been efficiently maintained, a seizure of vessels under the American flag has been reported, and, in consequence, measures to prevent and redress any molestation of our innocent merchantmen have been adopted.

Proclamation was duly made on the 9th day of November, 1887, of the conventional extensions of the treaty of June 3, 1875, with Hawaii, under which relations of such special and beneficent intercourse have been created.

In the vast field of Oriental commerce now unfolded from our Pacific borders, no feature presents stronger recommendations for congressional action than the establishment of communication by submarine telegraph with Honolulu.

The geographical position of the Hawaiian group, in

relation to our Pacific States, creates a natural interdependency and mutuality of interest which our present treaties were intended to foster, and which make close communication a logical and commercial necessity.

The wisdom of concluding a treaty of commercial reciprocity with Mexico has been heretofore stated in my messages to Congress, and the lapse of time and growth of commerce with that close neighbor and sister republic confirm the judgment so expressed.

The precise relocation of our boundary line is needed, and adequate appropriation is now recommended.

It is with sincere satisfaction that I am enabled to avert to the spirit of good neighborhood and friendly co-operation and conciliation that has marked the correspondence and action of the Mexican authorities in their share of the task of maintaining law and order about the line of our common boundary.

The long-pending boundary dispute between Costa Rica and Nicaragua was referred to my arbitration; and by an award made on the 22d of March last, the question has been finally settled to the expressed satisfaction of both of the parties in interest.

The Empire of Brazil, in abolishing the last vestige of slavery among Christian nations, called forth the earnest congratulations of this Government in expression of the cordial sympathies of our people.

The claims of nearly all other countries against Chili, growing out of her late war with Bolivia and Peru, have been disposed of either by arbitration or by a lump settlement. Similar claims of our citizens will continue to be urged upon the Chilean Government, and it is hoped will not be subject to further delays.

A comprehensive treaty of amity and commerce with Peru was proclaimed on November 7th, last, and it is expected that under its operation mutual prosperity and good understanding will be promoted.

In pursuance of the policy of arbitration, a treaty to settle the claim of Santos, an American citizen, against Ecuador has been concluded under my authority, and will be duly submitted for the approval of the Senate.

Like disposition of the claim of Carlos Butterfield against Denmark, and of Von Bokelen against Hayti, will probably be made, and I trust the principle of such settlements may be extended in practice under the approval of the Senate.

Through unforeseen causes, foreign to the will of both governments, the ratification of the convention of December 5, 1885, with Venezuela, for the rehearing of claims of citizens of the United States under the treaty of 1866, failed of exchange within the term provided, and a supplementary convention, further extending the time for exchange of ratifications and explanatory of an ambiguous provision of the prior convention, now awaits the advice and consent of the Senate.

Although this matter, in the stage referred to, concerns only the concurrent, treaty-making power of one branch of Congress, I advert to it in view of the interest repeatedly and conspicuously shown by you, in your legislative capacity, in favor of a speedy and equitable adjustment of the questions growing out of the discredited judgments of the previous mixed commission of Caracas. With every desire to do justice to the representations of Venezuela in this regard, the time seems to have come to end this matter, and I trust the prompt confirmation by both parties of the supplementary action referred to will avert the need of legislative or other action to prevent the longer withholding of such rights of actual claimants as may be shown to exist.

As authorized by the Congress, preliminary steps have been taken for the assemblage at this capital, during the coming year, of the representatives of South and Central American states, together with those of Mexico, Hayti, and San Domingo, to discuss sundry important monetary and commercial topics.

Excepting in those cases where, from reasons of contiguity of territory and the existence of a common border line incapable of being guarded, reciprocal

commercial treaties may be found expedient, it is believed that commercial policies inducing freer mutual exchange of products can be most advantageously arranged by independent but co-operative legislation.

In the mode last mentioned the control of our taxation for revenue will be always retained in our own hands unrestricted by conventional agreements with other governments.

In conformity also with Congressional authority the maritime powers have been invited to confer, in Washington, in April next, upon the practicability of devising uniform rules and measures for the greater security of life and property at sea. A disposition to accept on the part of a number of the powers has already been manifested, and if the co-operation of the nations chiefly interested shall be secured important results may be confidently anticipated.

The act of June 26, 1884, and the acts amendatory thereof, in relation to tonnage duties, have given rise to extended correspondence with foreign nations with whom we have existing treaties of navigation and commerce, and have caused wide and regrettable divergence of opinion in relation to the imposition of the duties referred to. These questions are important, and I shall make them the subject of a special and more detailed communication at the present session.

With the rapid increase of immigration to our shores and the facilities of modern travel, abuses of the generous privileges afforded by our naturalization laws call for their careful revision.

The easy and unguarded manner in which certificates of American citizenship can now be obtained has induced a class, unfortunately large, to avail themselves of the opportunity to become absolved from allegiance to their native land and yet by a foreign residence to escape any just duty and contribution of service to the country of their proposed adoption. Thus while evading the duties of citizenship to the United States they may make prompt claim for its national protection and demand its intervention in their behalf. International complications of a serious nature arise, and the correspondence of the State Department discloses the great number and complexity of the questions which have been raised.

Our laws regulating the issue of passports should be carefully revised, and the institution of a central bureau of registration at the capital is again strongly recommended. By this means full particulars of each case of naturalization in the United States would be secured and properly indexed and recorded, and thus many cases of spurious citizenship would be detected and unjust responsibilities would be avoided.

The reorganization of the consular service is a matter of serious importance to our national interests. The number of existing principal consular offices is believed to be greater than is at all necessary for the conduct of the public business. It need not be our policy to maintain more than a moderate number of principal offices, each supported by a salary sufficient to enable the incumbent to live in comfort, and so distributed as to secure the convenient supervision, through subordinate agencies, of affairs over a considerable district.

I repeat the recommendations heretofore made by me that the appropriations for the maintenance of our diplomatic and consular service should be recast; that the so-called notarial or unofficial fees which our representatives abroad are now permitted to treat as personal perquisites should be forbidden; that a system of consular inspection should be instituted, and that a limited number of secretaries of legation at large should be authorized.

Preparations for the centennial celebration, on April 30, 1889, of the inauguration of George Washington as President of the United States, at the city of New York, have been made by a voluntary organization of the citizens of that locality, and believing that an opportunity should be afforded for the expression of the interest felt throughout the country in this event, I respectfully recommend fitting and co-operative action

by Congress on behalf of the people of the United States.

The report of the Secretary of the Treasury exhibits in detail the condition of our national finances and the operations of the several branches of the Government related to his department.

The total ordinary revenues of the Government for the fiscal year ended June 30, 1888, amounted to \$379,266,074.76, of which \$219,091,173.63 was received from customs duties and \$124,296,871.98 from internal-revenue taxes.

The total receipts from all sources exceeded those for the fiscal year ended June 30, 1887, by \$7,862,797.10.

The ordinary expenditures of the Government for the fiscal year ending June 30, 1888, were \$259,653,958.67, leaving a surplus of \$119,612,116.09.

The decrease in these expenditures as compared with the fiscal year ended June 30, 1887, was \$8,278,221.30, notwithstanding the payment of more than \$5,000,000 for pensions in excess of what was paid for that purpose in the latter-mentioned year.

The revenues of the Government for the year ending June 30, 1889, ascertained for the quarter ended September 30, 1888, and estimated for the remainder of the time, amount to \$377,000,000; and the actual and estimated ordinary expenditures for the same year are \$273,000,000, leaving an estimated surplus of \$104,000,000.

The estimated receipts for the year ending June 30, 1890, are \$377,000,000, and the estimated ordinary expenditures for the same time are \$275,767,488.34, showing a surplus of \$101,232,511.66.

The foregoing statements of surplus do not take into account the sum necessary to be expended to meet the requirements of the sinking-fund act, amounting to more than \$47,000,000 annually.

The cost of collecting the customs revenues for the last fiscal year was 2.44 per cent.; for the year 1885 it was 3.77 per cent.

The excess of internal-revenue taxes collected during the last fiscal year over those collected for the year ended June 30, 1887, was \$5,489,174.26, and the cost of collecting this revenue decreased from 3.4 per cent. in 1887 to less than 3.2 per cent. for the last year. The tax collected on oleomargarine was \$723,948.04 for the year ending June 30, 1887, and \$864,139.88 for the following year.

The requirements of the sinking-fund act have been met for the year ended June 30, 1888, and for the current year also, by the purchase of bonds. After complying with this law as positively required, and bonds sufficient for that purpose had been bought at a premium, it was not deemed prudent to further expend the surplus in such purchases until the authority to do so should be more explicit. A resolution, however, having been passed by both Houses of Congress removing all doubt as to Executive authority, daily purchases of bonds were commenced on the 23d day of April, 1888, and have continued until the present time. By this plan bonds of the Government not yet due have been purchased up to and including the 30th day of November, 1888, amounting to \$94,700,400 the premium paid thereon amounting to \$17,508,613.08.

The premium added to the principal of these bonds represents an investment yielding about 2 per cent. interest for the time they still had to run; and the saving to the Government represented by the difference between the amount of interest at 2 per cent. upon the sum paid for principal and premium and what it would have paid for interest at the rate specified in the bonds if they had run to their maturity, is about \$27,165,000.

At first sight this would seem to be a profitable and sensible transaction on the part of the Government. But, as suggested by the Secretary of the Treasury, the surplus thus expended for the purchase of bonds was money drawn from the people in excess of any actual need of the Government, and was so expended rather than allow it to remain idle in the Treasury. If this surplus under the operation of just and equi-

table laws had been left in the hands of the people, it would have been worth in their business at least 6 per cent. per annum. Deducting from the amount of interest upon the principal and premium of these bonds for the time they had to run at the rate of 6 per cent. the saving of 2 per cent. made for the people by the purchase of such bonds, the loss will appear to be \$55,760,000.

This calculation would seem to demonstrate that if excessive and unnecessary taxation is continued and the Government is forced to pursue this policy of purchasing its own bonds at the premiums which it will be necessary to pay, the loss to the people will be hundreds of millions of dollars.

Since the purchase of bonds was undertaken as mentioned, nearly all that have been offered were at last accepted. It has been made quite apparent that the Government was in danger of being subjected to combinations to raise their price, as appears by the instance cited by the Secretary of the offering of bonds of the par value of only \$326,000 so often that the aggregate of the sums demanded for their purchase amounted to more than \$19,700,000.

Notwithstanding the large sums paid out in the purchase of bonds the surplus in the Treasury on the 30th day of November, 1888, was \$52,234,610.01 after deducting about twenty million dollars just drawn out for the payment of pensions.

At the close of the fiscal year ended June 30, 1887, there had been coined under the compulsory silver-coinage act \$266,988,280 in silver dollars, \$55,504,310 of which were in the hands of the people.

On the 30th day of June, 1888, there had been coined \$299,708,790; and of this \$55,829,303 was in circulation in coin, and \$200,387,376 in silver certificates, for the redemption of which silver dollars to that amount were held by the Government.

On the 30th day of November, 1888, \$312,570,990 had been coined, \$60,970,990 of the silver dollars were actually in circulation, and \$237,418,346 in certificates.

The Secretary recommends the suspension of the further coinage of silver, and in such recommendation I earnestly concur.

For further valuable information and timely recommendations I ask the careful attention of the Congress to the Secretary's report.

The Secretary of War reports that the army at the date of the last consolidated returns consisted of 2,189 officers and 24,549 enlisted men.

The actual expenditures of the War Department for the fiscal year ended June 30, 1888, amounted to \$41,165,107.07, of which sum \$9,158,516.63 was expended for public works, including river and harbor improvements.

"The Board of Ordnance and Fortifications," provided for under the act approved Sept. 22 last, was convened Oct. 30, 1888, and plans and specifications for procuring forgings for 8, 10 and 12 inch guns, under provisions of section 4, and also for procuring 12-inch breech-loading mortars, cast-iron, hooped with steel, under the provisions of section 5 of the said act, were submitted to the Secretary of War for reference to the board by the Ordnance Department on the same date.

These plans and specifications having been promptly approved by the board and the Secretary of War, the necessary authority to publish advertisements, inviting proposals, in the newspapers throughout the country, was granted by the Secretary on Nov. 12, and on Nov. 13 the advertisements were sent out to the different newspapers designated. The bids for the steel forgings are to be opened on Dec. 20, 1888, and for the mortars on Dec. 15, 1888.

A board of ordnance officers was convened at the Watervliet arsenal on Oct. 4, 1888, to prepare the necessary plans and specifications for the establishment of an army gun factory at that point. The preliminary report of this board, with estimates for shop-buildings and officers' quarters, was approved by the Board of Ordnance and Fortifications, Nov. 6 and 8. The specifications and form of advertisement and in-

structions to bidders have been prepared, and advertisements inviting proposals for the excavations for the shop-building and for erecting the two sets of officers' quarters have been published. The detailed drawings and specifications for the gun-factory building are well in hand, and will be finished within three or four months, when bids will be invited for the erection of the building. The list of machines, etc., is made out, and it is expected that the plans for the large lathes, etc., will be completed within about four months, and, after approval by the Board of Ordnance and Fortifications, bids for furnishing the same will be invited. The machines and other fixtures will be completed as soon as the shop is in readiness to receive them, probably about July, 1890.

Under the provisions of the army bill, for the procurement of pneumatic dynamite guns, the necessary specifications are now being prepared and advertisements for proposals will issue early in December. The guns will probably be of 15 inches caliber and fire a projectile that will carry a charge, each, of about 500 pounds of explosive gelatine with full-caliber projectiles. The guns will probably be delivered in from six to ten months from the date of the contract, so that all the guns of this class that can be procured under the provisions of the law will be purchased during the year 1889.

I earnestly request that the recommendations contained in the Secretary's report, all of which are, in my opinion, calculated to increase the usefulness and discipline of the army, may receive the consideration of the Congress. Among these the proposal that there should be provided a plan for the examination of officers to test their fitness for promotion is of the utmost importance. This reform has been before recommended in the reports of the Secretary, and its expediency is so fully demonstrated by the argument he presents in its favor that its adoption should no longer be neglected.

The death of General Sheridan in August last was a national affliction. The army then lost the grandest of its chiefs. The country lost a brave and experienced soldier, a wise and discreet counselor, and a modest and sensible man. Those who in any manner came within the range of his personal association will never fail to pay deserved and willing homage to his greatness and the glory of his career; but they will cherish with more tender sensibility the loving memory of his simple, generous, and considerate nature.

The Apache Indians, whose removal from their reservation in Arizona followed the capture of those of their number who engaged in a bloody and murderous raid during a part of the years 1885 and 1886, are now held as prisoners of war at Mount Vernon barracks, in the State of Alabama. They numbered, on the 31st day of October, the date of the last report, 83 men, 170 women, 70 boys, and 59 girls, in all 382 persons. The commanding officer states that they are in good health and contented, and that they are kept employed as fully as is possible in the circumstances. The children as they arrive at a suitable age are sent to the Indian schools at Carlisle and Hampton. Last summer some charitable and kind people asked permission to send two teachers to these Indians for the purpose of instructing the adults as well as such children as should be found there. Such permission was readily granted, accommodations were provided for the teachers, and some portions of the buildings at the barracks were made available for school purposes. The good work contemplated has been commenced, and the teachers engaged are paid by the ladies with whom the plan originated.

I am not at all in sympathy with those benevolent but injudicious people who are constantly insisting that these Indians should be returned to their reservation. Their removal was an absolute necessity if the lives and property of citizens upon the frontier are to be at all regarded by the Government. Their continued restraint at a distance from the scene of their repeated and cruel murders and outrages is still necessary. It is a mistaken philanthropy, every way

injurious, which prompts the desire to see these savages returned to their old haunts. They are in their present location as the result of the best judgment of those having official responsibility in the matter, and who are by no means lacking in kind consideration for the Indians. A number of these prisoners have forfeited their lives to outraged law and humanity. Experience has proved that they are dangerous and can not be trusted. This is true not only of those who on the war-path have heretofore actually been guilty of atrocious murder, but of their kindred and friends, who, while they remained upon their reservations, furnished aid and comfort to those absent with bloody intent.

These prisoners should be treated kindly and kept in restraint far from the locality of their former reservation; they should be subjected to efforts calculated to lead to their improvement and the softening of their savage and cruel instincts, but their return to their old home should be persistently resisted.

The Secretary in his report gives a graphic history of these Indians, and recites with painful vividness their bloody deeds and the unhappy failure of the Government to manage them by peaceful means. It will be amazing if a perusal of this history will allow the survival of a desire for the return of these prisoners to their reservation upon sentimental or any other grounds.

The report of the Secretary of the Navy demonstrates very intelligent management in that important department, and discloses the most satisfactory progress in the work of reconstructing the navy made during the past year. Of the ships in course of construction, five, namely, the "Charleston," "Baltimore," "Yorktown," "Vesuvius," and the "Petrel," have in that time been launched and are rapidly approaching completion; and in addition to the above, the "Philadelphia," the "San Francisco," the "Newark," the "Bennington," the "Concord," and the "Herreshoff" torpedo-boat are all under contract for delivery to the department during the next year. The progress already made and being made gives good ground for the expectation that these eleven vessels will be incorporated as part of the American navy within the next twelve months.

The report shows that, notwithstanding the large expenditures for new constructions, and the additional labor they involve, the total ordinary or current expenditures of the department for the three years ending June 30, 1888, are less by more than 20 per cent. than such expenditures for the three years ending June 30, 1884.

The various steps which have been taken to improve the business methods of the department are reviewed by the Secretary. The purchasing of supplies has been consolidated and placed under a responsible bureau head. This has resulted in the curtailment of open purchases, which in the years 1884 and 1885 amounted to over 50 per cent. of all the purchases of the department, to less than 11 per cent.; so that at the present time about 90 per cent. of the total departmental purchases are made by contract and after competition. As the expenditures on this account exceed an average of \$2,000,000 annually, it is evident that an important improvement in the system has been inaugurated and substantial economies introduced.

The report of the Postmaster-General shows a marked increase of business in every branch of the postal service.

The number of post-offices on July 1, 1888, was 57,376, an increase of 6,124 in three years and of 2,219 for the last fiscal year. The latter-mentioned increase is classified as follows:

New England States.....	5
Middle States.....	181
Southern States and Indian Territory (41).....	1,406
The States and Territories of the Pacific coast.....	190
The ten States and Territories of the West and Northwest.....	435
District of Columbia.....	2
Total.....	2,219

Free-delivery offices have increased from 189 in the fiscal year ended June 30, 1887, to 358 in the year ended June 30, 1888.

In the railway mail service there has been an increase in one year of 168 routes, and in the number of miles traveled per annum an increase of 15,795,917.48. The estimated increase of railroad service for the year was 6,000 miles, but the amount of new railroad service actually put on was 12,764.50 miles.

The volume of business in the money-order division, including transactions in postal-notes, reached the sum of upward of \$143,000,000 for the year.

During the past year parcel-post conventions have been concluded with Barbadoes, the Bahamas, British Honduras, and Mexico, and are now under negotiation with all the Central and South American states. The increase of correspondence with foreign countries during the past three years is gratifying, and is especially notable and exceptional with the Central and South American states and with Mexico. As the greater part of mail-matter exchanged with these countries is commercial in character, this increase is evidence of the improved business relations with them. The practical operation of the parcel-post conventions, so far as negotiated, has served to fulfill the most favorable predictions as to their benefits. In January last a general postal convention was negotiated with the Dominion of Canada, which went into operation on March 1, and which practically makes one postal territory of the United States and Canada. Under it merchandise parcels may now be transmitted through the mails at fourth-class rates of postage.

It is not possible here to touch even the leading heads of the great postal establishment, to illustrate the enormous and rapid growth of its business and the needs for legislative readjustment of much of its machinery that it has outgrown. For these and valuable recommendations of the Postmaster-General, attention is earnestly invited to his report.

A department whose revenues have increased from \$19,772,000 in 1870 to \$52,700,000 in 1888, despite reductions of postage which have enormously reduced rates of revenue while greatly increasing its business, demands the careful consideration of the Congress as to all matters suggested by those familiar with its operations, and which are calculated to increase its efficiency and usefulness.

A bill, proposed by the Postmaster-General, was introduced at the last session of the Congress, by which a uniform standard in the amount of gross receipts would fix the right of a community to a public building to be erected by the Government for post-office purposes. It was demonstrated that, aside from the public convenience and the promotion of harmony among citizens—invariably disturbed by change of leasings and of site—it was a measure of the highest economy and of sound business judgment. It was found that the Government was paying in rents at the rate of from 7 to 10 per cent. per annum on what the cost of such public buildings would be. A very great advantage resulting from such a law would be the prevention of a large number of bills, constantly introduced for the erection of public buildings at places, and involving expenditures, not justified by public necessity. I trust that this measure will become a law at the present session of Congress.

Of the total number of postmasters, 54,874 are of the fourth class. These, of course, receive no allowances whatever for expenses in the service, and their compensation is fixed by percentages on receipts at their respective offices. This rate of compensation may have been, and probably was at some time, just, but the standard has remained unchanged through the several reductions in the rates of postage. Such reductions have necessarily cut down the compensation of these officials, while it undoubtedly increased the business performed by them. Simple justice requires attention to this subject to the end that fourth-class postmasters may receive at least an equivalent to that which the law itself, fixing the rate, intended for them.

Another class of postal employes whose condition seems to demand legislation is that of clerks in post-offices; and I call especial attention to the repeated recommendations of the Postmaster-General for their classification. Proper legislation of this character for the relief of carriers in the free-delivery service has been frequent. Provision is made for their promotion; for substitutes for them on vacation; for substitutes for holidays, and limiting their hours of labor. Seven million dollars has been appropriated for the current year to provide for them, though the total number of offices where they are employed is but 358 for the past fiscal year, with an estimated increase for the current year of but 40, while the total appropriation for all clerks in offices throughout the United States is \$5,950,000.

The legislation affecting the relations of the Government with railroads is in need of revision. While, for the most part, the railroad companies throughout the country have cordially co-operated with the Post-Office Department in rendering excellent service, yet under the law as it stands, while the compensation to them for carrying the mail is limited and regulated, and although railroads are made post-roads by law, there is no authority reposed anywhere to compel the owner of a railroad to take and carry the United States mails. The only alternative provided by act of Congress in case of refusal is for the Postmaster-General to send mail forward by pony express. This is but an illustration of ill-fitting legislation, reasonable and proper at the time of its enactment, but long since outgrown and requiring readjustment.

It is gratifying to note from the carefully prepared statistics accompanying the Postmaster-General's report that, notwithstanding the great expansion of the service, the rate of expenditure has been lessened, and efficiency has been improved in every branch; that fraud and crime have decreased; that losses from the mails have been reduced, and that the number of complaints of the service made to postmasters and to the department are far less than ever before.

The transactions of the Department of Justice for the fiscal year ended June 30, 1888, are contained in the report of the Attorney-General, as well as a number of valuable recommendations, the most of which are repetitions of those previously made, and ought to receive consideration.

It is stated in this report that though judgments in civil suits amounting to \$552,021.08 were recovered in favor of the Government during the year, only the sum of \$132,984 was collected thereon; and that though fines, penalties, and forfeitures were imposed amounting to \$541,508.43, only \$109,648.42 of that sum was paid on account thereof. These facts may furnish an illustration of the sentiment which extensively prevails that a debt due the Government should cause no inconvenience to the citizen.

It also appears from this report that though prior to March, 1885, there had been but six convictions in the Territories of Utah and Idaho under the laws of 1862 and 1882, punishing polygamy and unlawful cohabitation as crimes, there have been since that date nearly six hundred convictions under these laws and the statutes of 1887; and the opinion is expressed that under such a firm and vigilant execution of these laws, and the advance of ideas opposed to the forbidden practices, polygamy within the United States is virtually at an end.

Suits instituted by the Government under the provisions of the act of March 3, 1887, for the termination of the corporations known as the Perpetual Emigrating Fund Company and the Church of Jesus Christ of Latter-Day Saints have resulted in a decree favorable to the Government, declaring the charters of these corporations forfeited and escheating their property. Such property, amounting in value to more than \$300,000, is in the hands of a receiver pending further proceedings, an appeal having been taken to the Supreme Court of the United States.

In the report of the Secretary of the Interior, which will be laid before you, the condition of the various

branches of our domestic affairs connected with that department and its operations during the past year are fully exhibited. But a brief reference to some of the subjects discussed in this able and interesting report can here be made; but I commend the entire report to the attention of the Congress, and trust that the sensible and valuable recommendations it contains will secure careful consideration.

I can not too strenuously insist upon the importance of proper measures to insure a right disposition of our public lands, not only as a matter of present justice, but in forecast of the consequences to future generations. The broad, rich acres of our agricultural plains have been long preserved by Nature to become her untraveled gift to people civilized and free, upon which should rest, in well-distributed ownership, the numerous homes of enlightened, equal, and fraternal citizens. They came to national possession with the warning example in our eyes of the entail of iniquities in landed proprietorship which other countries have permitted and still suffer. We have no excuse for the violation of principles, cogently taught by reason and example, nor for the allowance of pretexts which have sometimes exposed our lands to colossal greed. Laws which open a door to fraudulent acquisition, or administration which permits favor to rapacious seizure by a favored few of expanded areas that many should enjoy, are accessory to offenses against our national welfare and humanity, not to be too severely condemned or punished.

It is gratifying to know that something has been done at last to redress the injuries to our people and check the perilous tendency of the reckless waste of the national domain. That over 80,000,000 acres have been arrested from illegal usurpation, improvident grants, and fraudulent entries and claims, to be taken for the homesteads of honest industry—although less than the greater areas thus unjustly lost—must afford a profound gratification to right-feeling citizens as it is a recompense for the labors and struggles of the recovery. Our dear experience ought sufficiently to urge the speedy enactment of measures of legislation which will confine the future disposition of our remaining agricultural lands to the uses of actual husbandry and genuine homes.

Nor should our vast tracts of so-called desert lands be yielded up to the monopoly of corporations or grasping individuals, as appears to be much the tendency under the existing statute. These lands require but the supply of water to become fertile and productive. It is a problem of great moment how most wisely for the public good that factor shall be furnished. I can not but think it perilous to suffer either these lands or the sources of their irrigation to fall into the hands of monopolies, which by such means may exercise lordship over the areas dependent on their treatment for productiveness. Already steps have been taken to secure accurate and scientific information of the conditions, which is the prime basis of intelligent action. Until this shall be gained, the course of wisdom appears clearly to lie in a suspension of further disposal, which only promises to create rights antagonistic to the common interest. No harm can follow this cautionary conduct. The land will remain, and the public good presents no demand for hasty dispossession of national ownership and control.

I commend also the recommendations that appropriate measures be taken to complete the adjustment of the various grants made to the States for internal improvements and of swamp and overflowed lands, as well as to adjudicate and finally determine the validity and extent of the numerous private land claims. All these are elements of great injustice and peril to the settlers upon the localities affected; and now that their existence can not be avoided, no duty is more pressing than to fix as soon as possible their bounds and terminate the threats of trouble which arise from uncertainty.

The condition of our Indian population continues to improve and the proofs multiply that the transform-

ing change, so much to be desired, which shall substitute for barbarism enlightenment and civilizing education, is in favorable progress. Our relations with these people during the year have been disturbed by no serious disorders, but rather marked by a better realization of their true interests, and increasing confidence and good-will. These conditions testify to the value of the higher tone of consideration and humanity which has governed the later methods of dealing with them, and commend its continued observance.

Allotments in severalty have been made on some reservations until all those entitled to land thereon have had their shares assigned, and the work is still continued. In directing the execution of this duty I have not aimed so much at rapid dispatch as to secure just and fair arrangements which shall best conduce to the objects of the law, by producing satisfaction with the results of the allotments made. No measure of general effect has ever been entered on from which more may be fairly hoped, if it shall be discreetly administered. It proffers opportunity and inducement to that independence of spirit and life which the Indian peculiarly needs, while at the same time the inalienability of title affords security against the risks his inexperience of affairs or weakness of character may expose him to in dealing with others. Whenever begun upon any reservation it should be made complete, so that all are brought to the same condition, and, as soon as possible, community in lands should cease by opening such as remain unallotted to settlement. Contact with the ways of industrious and successful farmers will perhaps add a healthy emulation which will both instruct and stimulate.

But no agency for the amelioration of this people appears to me so promising as the extension, urged by the Secretary, of such complete facilities of education as shall, at the earliest possible day, embrace all teachable Indian youth, of both sexes, and retain them with a kindly and beneficent hold until their characters are formed and their faculties and dispositions trained to the sure pursuit of some form of useful industry. Capacity of the Indian no longer needs demonstration. It is established. It remains to make the most of it, and when that shall be done the curse will be lifted, the Indian race saved, and the sin of their oppression redeemed. The time of its accomplishment depends upon the spirit and justice with which it shall be prosecuted. It can not be too soon for the Indian, nor for the interest and good name of the nation.

The average attendance of Indian pupils on the schools increased by over 900 during the year, and the total enrollment reached 15,212. The cost of maintenance was not materially raised. The number of teachable Indian youth is now estimated at 40,000, or nearly three times the enrollment of the schools. It is believed the obstacles in the way of instruction are all surmountable, and that the necessary expenditure would be a measure of economy.

The Sioux tribes on the great reservation of Dakota refused to assent to the act passed by the Congress at its last session for opening a portion of their lands to settlement, notwithstanding modification of the terms was suggested which met most of their objections. Their demand is for immediate payment of the full price of \$1.25 per acre for the entire body of land the occupancy of which they are asked to relinquish.

The manner of submission insured their fair understanding of the law, and their action was undoubtedly as thoroughly intelligent as their capacity admitted. It is at least gratifying that no reproach of overreaching can in any manner lie against the Government, however advisable the favorable completion of the negotiation may have been esteemed.

I concur in the suggestions of the Secretary regarding the Turtle Mountain Indians, the two reservations in California, and the Crees. They should, in my opinion, receive immediate attention.

The number of pensioners added to the rolls during the fiscal year ended June 30, 1888, is 60,252; and in-

crease of pensions was granted in 45,716 cases. The names of 15,730 pensioners were dropped from the rolls during the year for various causes, and at the close of the year the number of persons of all classes receiving pensions was 452,557. Of these there were 806 survivors of the War of 1812, 10,787 widows of those who served in that war, 16,060 soldiers of the Mexican War, and 5,104 widows of said soldiers.

One hundred and two different rates of pensions are paid to these beneficiaries, ranging from \$2 to \$416.66 per month.

The amount paid for pensions during the fiscal year was \$78,775,861.92, being an increase over the preceding year of \$5,308,280.22. The expenses attending the maintenance and operation of the Pension Bureau during that period were \$3,262,524.67, making the entire expenditures of the bureau \$82,038,386.59, being 21½ per cent. of the gross income and nearly 31 per cent. of the total expenditures of the Government during the year.

I am thoroughly convinced that our general pension laws should be revised and adjusted to meet, as far as possible in the light of our experience, all meritorious cases. The fact that one hundred and two different rates of pensions are paid can not, in my opinion, be made consistent with justice to the pensioners or to the Government; and the numerous private pension bills that are passed, predicated upon the imperfection of general laws, while they increase in many cases existing inequality and injustice, lend additional force to the recommendation for a revision of the general laws on this subject.

The laxity of ideas prevailing among a large number of our people regarding pensions is becoming every day more marked. The principles upon which they should be granted are in danger of being altogether ignored, and already pensions are often claimed because the applicants are as much entitled as other successful applicants rather than upon any disability reasonably attributable to military service. If the establishment of vicious precedents be continued, if the granting of pensions be not divorced from partisan and other unworthy and irrelevant considerations, and if the honorable name of veteran unfairly becomes by these means but another term for one who constantly clamors for the aid of the Government, there is danger that injury will be done to the fame and patriotism of many whom our citizens all delight to honor, and that a prejudice will be aroused unjust to meritorious applicants for pensions.

The Department of Agriculture has continued, with a good measure of success, its efforts to develop the processes, enlarge the results, and augment the profits of American husbandry. It has collected and distributed practical information, introduced and tested new plants, checked the spread of contagious disease of farm animals, resisted the advance of noxious insects and destructive fungous growths, and sought to secure to agricultural labor the highest reward of effort and the fullest immunity from loss. Its records of the year show that the season of 1888 has been one of medium production. A generous supply of the demands of consumption has been assured, and a surplus for exportation, moderate in certain products and bountiful in others, will prove a benefaction alike to buyer and grower.

Four years ago it was found that the great cattle industry of the country was endangered, and those engaged in it were alarmed at the rapid extension of the European lung plague of pleuro-pneumonia. Serious outbreaks existed in Illinois, Missouri, and Kentucky, and in Tennessee animals affected were held in quarantine. Five counties in New York and from one to four counties in each of the States of New Jersey, Pennsylvania, Delaware, and Maryland were almost equally affected.

With this great danger upon us, and with the contagion already in the channels of commerce, with the enormous direct and indirect losses already being caused by it, and when only prompt and energetic action could be successful, there were in none of these

States any laws authorizing this department to eradicate the malady or giving the State officials power to co-operate with it for this purpose. The department even lacked both the requisite appropriation and authority.

By securing State co-operation in connection with authority from Congress, the work of eradication has been pressed successfully, and this dreaded disease has been extirpated from the Western States, and also from the Eastern States, with the exception of a few restricted areas, which are still under supervision. The danger has thus been removed, and trade and commerce have been freed from the vexatious State restrictions which were deemed necessary for a time.

During the past four years the process of diffusion, as applied to the manufacture of sugar from sorghum and sugar-cane, has been introduced into this country and fully perfected by the experiments carried on by the Department of Agriculture. This process is now universally considered to be the most economical one, and it is through it that the sorghum-sugar industry has been established upon a firm basis and the road to its future success opened. The adoption of this diffusion process is also extending to Louisiana and other sugar-producing parts of the country, and will doubtless soon be the only method employed for the extraction of sugar from the cane.

An exhaustive study has also, within the same period, been undertaken of the subject of food adulteration and the best analytical methods for detecting it. A part of the results of this work has already been published by the department, which, with the matter in course of preparation, will make the most complete treatise on that subject that has ever been published in any country.

The department seeks a progressive development. It would combine the discoveries of science with the economics and amelioration of rural practice. A supervision of the endowed experimental-station system recently provided for is a proper function of the department, and is now in operation. This supervision is very important, and should be wisely and vigilantly directed, to the end that the pecuniary aid of the Government in favor of intelligent agriculture should be so applied as to result in the general good and to the benefit of all our people, thus justifying the appropriations made from the public treasury.

The adjustment of the relations between the Government and the railroad companies which have received land grants and the guarantee of the public credit in aid of the construction of their roads should receive early attention. The report of a majority of the commissioners appointed to examine the affairs and indebtedness of these roads, in which they favor an extension of the time for the payment of such indebtedness in at least one case where the corporation appears to be able to comply with well-guarded and exact terms of such extension, and the re-enforcement of their opinion by gentlemen of undoubted business judgment and experience, appointed to protect the interests of the Government as directors of said corporation, may well lead to the belief that such an extension would be to the advantage of the Government.

The subject should be treated as a business proposition with a view to a final realization of its indebtedness by the Government, rather than as a question to be decided upon prejudice or by way of punishment for previous wrong-doing.

The report of the commissioners of the District of Columbia, with its accompanying documents, gives in detail the operations of the several departments of the District government, and furnishes evidence that the financial affairs of the District are at present in such satisfactory condition as to justify the commissioners in submitting to the Congress estimates for desirable and needed improvements.

The commissioners recommend certain legislation which in their opinion is necessary to advance the interests of the District.

I invite your special attention to their request for such legislation as will enable the commissioners,

without delay, to collect, digest, and properly arrange the laws by which the District is governed, and which are now embraced in several collections, making them available only with great difficulty and labor. The suggestions they make touching desirable amendments to the laws relating to licenses granted for carrying on the retail traffic in spirituous liquors, to the observance of Sunday, to the proper assessment and collection of taxes, to the speedy punishment of minor offenders, and to the management and control of the reformatory and charitable institutions supported by Congressional appropriations, are commended to careful consideration.

I again call attention to the present inconvenience and the danger to life and property attending the operation of steam railroads through and across the public streets and roads of the District. The propriety of such legislation as will properly guard the use of these railroads and better secure the convenience and safety of citizens is manifest.

The consciousness that I have presented but an imperfect statement of the condition of our country and its wants, occasions no fear that anything omitted is not known and appreciated by the Congress, upon whom rests the responsibility of intelligent legislation in behalf of a great nation and a confiding people.

As public servants we shall do our duty well if we constantly guard the rectitude of our intentions, maintain unsullied our love of country, and with unselfish purpose strive for the public good.

GROVER CLEVELAND.

WASHINGTON, Dec. 3, 1888.

New States.—The most important action taken by the Congress at its closing session was to provide for the admission of four new States into the Union.

The Senate, on April 19, 1888, passed a bill for the admission of South Dakota into the Union, and for the organization of the Territory of North Dakota. In the House, on Jan. 15, 1889, Mr. Springer, of Illinois, reported a substitute for the Senate bill, which provided for the admission of the States of Dakota, Montana, Washington, and New Mexico, with a proviso for two States, North Dakota and South Dakota, instead of Dakota. Mr. Cox, of New York, in supporting the substitute, said in a general way:

"There is a sort of glamour and fascination about the admission of States into our imperial federation. I am subject to influences of a romantic character. But they have not disturbed, and I think will not disturb that discretion which belongs to Congress when it votes to make complete the circle of our Federal felicities.

"Mr. Speaker, as we approach the centenary in the life of our nation the mind becomes reminiscent. It would also be prophetic. In dim outline the ancient seers saw, through the mists of western seas, our hemisphere as the home of a race which rejoiced in a 'golden age.' These dreams take hold upon the imagination. They give an illusion to our 'discretion,' on bills like these looking to future empire.

"The imaginary commonwealth of Plato was not altogether unsubstantial. Some of the visions upon the horizon of our early epochs have found realization. But a republic never imagined by Plato, nor dreamed of by Harrington or Sir Thomas More, has found its home in our hemisphere. Like all hope that has its fruition, this has come to us through toil, danger, and heroism. These sacrifices have no parallel in the adventures of our race or upon our planet.

"Out of what were mere nebule four centuries

ago, stars have been resolved. Our Western heavens are aglow with political luminaries which have their symbolization upon our flag.

"A few only of our Territories remain in their rudimentary state. They are fast assuming the proportions for Statehood.

"Wyoming, Idaho, Arizona, and Alaska, are springing to the front. They are fulfilling the conditions of political independency, while our other Territories, in so far as population and resources are concerned, have already human souls and prosperous opulence enough for a more exalted relation in the hierarchy of Statehood.

"What concerns us immediately, Mr. Speaker, is the admission as States, with proper boundaries and suitable numbers, of five Territories. These are combined in the substitute—the two Dakotas, Montana, Washington, and New Mexico. I omit purposely any consideration of Utah. As to Wyoming, Idaho, Arizona, and Alaska, provision will be made in time that, when they attain a population adequate under the Representative ratio, steps may be taken for their admission. So that in the consideration of the Territorial question we view it from a standpoint whose scope comprehends nearly all of our remaining domain.

"It is well to remember, notwithstanding certain precedents to the contrary, that these Territories can not become political States with equal privileges in a Federal way without certain formalities. There is no leaping, like Minerva from the brain of Jove, fully equipped and matured. Under our system there are provisions to be observed before the boon of stately equality and the regality of 'unassuming pomp' are bestowed.

"The examination of these formalities involves the question, first, of power; second, the array of precedents; and, third, the deductions of reason.

"As to the power. Is it not ample on the part of Congress? Why, sir, there is only one limitation. That power is found in the third section of the fourth article of the Constitution. It says: 'New States may be admitted by the Congress into this Union.' In a subsequent section it 'guarantees to every State in this Union a republican form of government.' Here is a power to admit. It is unquestionable. The meaning of the phrase 'a republican form of government' was much discussed during the slavery agitation, before and during our civil war. It needs no rehearsal now. There is no danger that any constitution made by any of these Territories will be un-republican in form. It will not only have the authority from Congress, the stamp of maturity, and the reflection of the popular will, but in its very body as well as in its essence it will be republican.

"The Territories which we propose to admit have an organic law from Congress and they are under certain clauses of our Federal statutes. The organic law does not provide for a convention of the people to form constitutions. There has been no legislation by Congress in that direction, and there is no inhibition in our statutes upon such action.

"Whether it be necessary that Congress should initiate proceedings looking to a convention and a constitution and admission, or whether a Terri-

torial legislature may do this I will not now discuss. If Congress has not done it in the organic act, it has certainly not delegated the power to do it to the Territorial legislature, and therefore, although the precedents are not all one way, it would certainly be more regular and comport more with the dignity of the proceeding that the scepter of sovereignty should be derived from the people of the United States in Congress assembled.

"I am not unaware that some precedents can be quoted for the admission of States where the initiative did not begin with Congress, but in the body of the Territory; and although there may be absolute discretion, limited, as I have stated, in Congress to admit States, regardless of the initial steps, it is safer to follow the words of Jefferson as to the first Constitution of Virginia, adopted in 1776, when he said that the Legislature of that time had been elected only for the ordinary purposes of legislation. He denied that the acquiescence of the people had supplied the want of original power to create the Constitution. This was in 1824. He fortified his opinion by saying—

That of the twenty-four States then under the Federal organization, twenty-three have disapproved the doctrine and example of Virginia, and have deemed the formal authority of their people a necessary foundation for their Constitution.

"In the case of Arkansas, Gen. Jackson's Attorney-General decided that the Legislature could not act in the formation of a State Government. In the Michigan case, Mr. Buchanan held that such acts were usurpation. California is no precedent, for her case, like that of Texas, was exceptional. The Lecompton Constitution is no precedent; the people of Kansas set aside the Lecompton Constitution as null. She came in afterward under the authority of Congress. I had the pleasure, under much oburgation from Republicans, of voting for Kansas. Kentucky was admitted without a constitutional convention. Her Constitution was not even submitted to her people. Tennessee, in 1796, formed a State without asking Congress. The question was discussed in Congress. The majority of the statesmen who engaged in that discussion maintained the same right which was ordained in 1787, and upon that right Tennessee was admitted. Indiana came in under an enabling act. Iowa, Michigan, Florida, and Oregon came in under constitutions whose only authority were the conventions which were held under legislative acts.

"In many of our States there were no enabling acts at all. So that there is no uniformity of procedure in matters of this nature.

"In so far as this question can be distorted into a party question, I may say that there is a uniform line of precedent for the admission of States into the Union, under conditions not so urgent or favorable for Statehood as those presented by the Territories named in the substitute of the honorable gentleman from Illinois.

"The ordinance of 1787 was a compact. By it the people, in certain boundaries, when they attained 60,000 inhabitants, were authorized to form States and demand admission as 'an act of justice.' By the acts of Congress of June 20, 1834, and April 20, 1836, this ordinance was extended to the Territory of Wisconsin. That Ter-

ritory then included Dakota. Section 1,891 of the Revised Statutes recognized the same right in the present Territory of Dakota.

"Our custom, sir, as to population has not been uniform. If population is to be the test of admission, the Territories in the substitute have each a sufficient number for one member of Congress. This is the moral, though not the legal touchstone by which the admission of States should be determined. Many of our States have been admitted with less than a representative ratio. Illinois was 380 less; Florida, 6,000 less; Oregon, 43,000 less; Kansas, about 20,000 less; and Nevada 87,381 less than the ratio! The ratio in 1864, when Nevada was admitted, was 127,381. Nebraska was less than the ratio by 27,000, and Colorado by 31,425."

As to the qualifications of each Territory for Statehood, Mr. Cox said:

"If the Republican party could vote for New Mexico fourteen years ago, why can not they do it now? She has added 55,000 in population since the census of 1880 was taken. In the last year 384,000 acres of public land have been entered for actual occupation and improved. She is engaged in the construction of railroads across her territory, and is opening new sections to settlement and establishment. At the end of the year which has just passed there was completed 2,000 mileage of railroads. Her grain-crops and other products, especially grapes and semi-tropical fruits, grow in profusion, while her cattle ranges are among the marvels of her growth. She had an increase of 135,000 head of cattle in 1888 over 1887, and her mines are becoming productive after the idleness of years, if not of centuries.

"It will not do, therefore, to say that New Mexico has not enough population or wealth to support a State government; nor is it just to the elements which permeate that Territory to say that she has too much ignorance or too small an admixture of intelligence for the regulation of a State. It is no objection to her admission that the peon and mongrel race forms a portion of her population, for the same rule would have kept out California, and would to-day disbar the States South for their mixed colored elements. It is no objection that the New Mexicans speak a Spanish *patois*, for California had the same disability and has outgrown it promptly. The progress which New Mexico is now enjoying in mining and stock-growing, sheep-raising and agriculture, indicates that though portions of her soil may be barren, rainless, and arid, she has all the elements of growth, and will shine as a fit embodiment of Statehood in the catalogue of States.

"From the reports of the governors of our Territories it will appear that as to population Alaska has 50,000 people and \$25,000,000 in wealth; Idaho has 100,000 in population and \$65,000,000 in wealth; Arizona 120,000 population and \$75,000,000 in wealth. As to the other Territories, omitting Utah, Dakota is registered as having 600,000 in population and \$320,000,000 in wealth; Washington 168,000 population and \$250,000,000 in wealth; Montana 140,000 population and \$70,000,000 in wealth. But I have no doubt that Montana has to-day a sufficiency for one member of Congress. So that in the bill proposed

there is no objection to any of those five Territories on account of wealth or population.

"First, as to Montana. Her growth is at the rate of 10,000 a year and 100,000 over that of the census of 1880. Her financial condition is sound and stable, with money in the treasury and freedom from debt. She has every inducement to emigration, for her taxes are light. Her mines of gold and silver and lead are even greater than her agricultural and pastoral resources.

"Second, as to Washington Territory. Her Governor believes the population I have named to be a low figure and that at present her population is equal to nearly 188,000. Her gain in values, though not equal to that of Dakota, is simply enormous, being a gain of over \$65,000,000 during the past ten years. She has nearly 1,200 miles of railroad, and over her bosom are borne the products of Eastern Asia, as well as her own commercial and agricultural produce, in which fish and lumber figure prominently.

"As to Dakota, it is to me amusing, if not astonishing, that those who have had charge of our Territorial affairs in this House should require another expression from Dakota as to the matter of division.

"Again and again, through her conventions of both parties and her Legislatures, has she asked for that division, respectfully, earnestly, and persistently. The fact is that by the action of this Congress the question of division has practically disappeared. Still it is submitted by the third section of the substitute, and I am content if gentlemen desire to have it submitted again. It is no obstacle to my vote for admission, and it seems to give our friends some relief, since no one desires to force Dakota apart in order to admit her as twins. It seems to be practically concluded that she will be divided, according to the provisions of the bill, upon the seventh standard parallel. The submission of the question of division may be wasteful excess, but so long as it comports with a certain regularity in procedure I will not object to it.

"Dakota in length and breadth, in population, in area, in wealth, and in progress, stands unexampled in the annals of mankind for material, political, and, I may say, intellectual and spiritual advancement.

"I will not argue the propriety of dividing her, nor will I discuss now the necessity of complying with the rule which I have laid down—of giving to her members of Congress in proportion to her population. It is the rule of the Constitution and the rule of right. But I will say that the census of 1890 will show that Dakota, which began with 14,000 population in 1870 and rose to 135,000 population in 1880, and has to-day over 600,000 population—I will say, that a State which leaped in the last decade, from 1870 to 1880, 885 per cent. in the increase of her population, will have in 1890, by the least computation, 1,329,750 people, with seven members of Congress to represent her in her entirety.

"Every element connected with the progress of this remarkable Territory, including her 4,000 miles of railroad, all point with no unmistakable gesture toward the division of the State. There can be no greater indignity, Mr. Speaker, than in keeping so vast a country, with a population so energetic and hopeful, so industrious and far-

sighted, under a Territorial form of government. The people there desire to vote for the Chief Magistrate of the Union. They desire to have a voice under the Constitution of the United States. They desire to have representation at this Capitol. They desire to govern themselves by their own elected officials. They desire that their incomeless school-lands shall be utilized for the education of their children. They desire courts of their own judges. They desire the right to make their own laws and to reform them at pleasure. They want neither the satraps of the Orient nor the satraps of reconstruction.

"When they pay their taxes, they desire a voice as to the disposition of the moneys. They desire even when traveling from one part of their Territory to another something less than a thousand miles of their journey for the argument of cases. Because there is little or no commercial intercourse between North and South Dakota, because one part is reached by one system of railroad and the other by another, and because they are different in their very organizations north and south, as well as in their homes of charity and institutions of learning, they wish that independency which division will give them, and that liberty to which they were accustomed before leaving their homes in the States to build an empire in the wilderness.

"Dakota has already spoken for division through her conventions as she had often spoken before. Joining with her sisters Montana and Washington, she appeals in behalf of the Northwest to this Congress of the nation for the recognition of her movement toward Statehood. She points to her population and her wealth, and with no unmeaning gesture to the history of our States. She admonishes us that Kentucky came in with 74,000, Tennessee with 67,000, and yet she has ten times as many people as had either of these States on admission. She points to the admission of Ohio with her 35,000; Missouri, with her 66,000; Michigan, with her 65,000; Florida, with her 64,000; Iowa, with her 78,000; California, with her 92,000; Oregon, with her 50,000; Kansas, with her 107,000; Minnesota, with her 120,000; Nebraska and Colorado, with their 100,000 each; and Nevada—what an anticlimax—with her 40,000. She says to the nation, 'Behold our 600,000 people, and give us the habiliments of Statehood according to our growth!' When divided, South Dakota is five times the average of our States in population and North Dakota four times."

Mr. Baker, of New York, objected to the substitute as confounding the claim of Dakota, which had already prepared for Statehood and demanded admission to the Union as a constitutional right, with the passage of enabling acts for other Territories. He said:

"We owe it to ourselves, we owe it to the people of Dakota and of these other Territories, that immediate legislation be had in their behalf; but no good reason can be given, none has been attempted, why the pending act to admit South Dakota should be turned into a mere enabling act and the Territories of New Mexico, Arizona, Montana, and Washington included in one bill therewith. An enabling act is a mere invitation to do what South Dakota has already done. So far as it relates to South Dakota the omnibus

bill is an insult, to be borne only because those people consider the source from which it comes. The gentlemen from Montana and Washington Territories have characterized in appropriate language the sentiments of their Territories in respect of the treatment of them by the Congress during the past four years.

"What I object to is the attaching to this bill of the provisions for an enabling act for Washington, for Montana, and for New Mexico. The Delegate from Arizona is prepared to offer an amendment to include his Territory in the bill and to provide for its admission two years hence. There is no objection, perhaps, to an enabling act, but what is the necessity for it? As I have said, such an act has been held over and over again to be a mere matter of form, an invitation to the people of a Territory to form a State constitution and organize themselves for admission to Statehood, but such an act is in no case necessary. Every one of these Territories has a legal and constitutional right to come here at any time, with a constitution already prepared, with a State organization already perfected, and ask immediate admission to Statehood. And this is what I claim for South Dakota.

"For seven long weary years Dakota was knocking at the doors of Congress for the passage of an enabling act in her behalf. That was denied. Then her people went forward, as they had a perfect right to do, organized a government and prepared a State constitution, which has been before this House for several years. It was before the Forty-eighth, Forty-ninth, and the Fiftieth Congresses. These people are abundantly equipped for Statehood, and by all the precedents connected with the admission of twenty-five States are entitled to immediate admission.

"It will be urged by my friend from Illinois, the chairman of the Committee on Territories, that his bill, the 'omnibus bill,' will meet the whole question by one vote. But this is too great a question to be disposed of by a single vote, without the fullest and fairest consideration. Arizona, if entitled to be attached to this 'omnibus bill,' ought to be. Her case is certainly entitled to the fullest consideration. Wyoming desires to be embraced in this same bill. Shall these two Territories be denied consideration? Why are these Territories left out and New Mexico alone included?

"Now, if we are to have action on a case where a community equipped in all respects for Statehood comes asking, not for an enabling act, but for admission into the Union, let the case be considered alone; and then, if enabling acts are desirable for other Territories let us pass acts meeting those cases. I trust the House, when it comes to vote on this question, will reject the proposition to pass the 'omnibus bill,' because when we come to that the other Territories will properly urge their claims. They have a right to be heard. We have given no consideration to Wyoming, no full and satisfactory consideration to the claims of New Mexico. Washington and Montana have had but a partial hearing, although the representatives from those Territories have spoken out in condemnation of the treatment which they have received at the hands of this Democratic Congress.

"I appeal to the House and desire to urge with all the power I possess that we shall reject the proposition to load down Dakota with four or five other Territories. I am in favor of their admission as States at the earliest possible day. I would vote enabling acts for them if they desired it. But I say to those people, come up as Dakota has done; build up your Constitution, organize your State government; come to Congress and claim the constitutional right you have of admission to Statehood.

Mr. Macdonald, of Minnesota, offered a substitute for the substitute proposed by Mr. Springer, of Illinois, which provided for the admission of South Dakota under the Constitution already adopted by its people, but retained the provisions for enabling acts for other Territories. This substitute was defeated Jan. 18, by a vote of 117 yeas to 122 nays. On the same day the substitute for the Senate bill proposed by Mr. Springer was passed by a vote of 145 yeas to 98 nays. In stating the case for the measure just previous to the final vote, Mr. Springer said:

"I desire to call the attention of the House to the fact that the proposition which is now pending and which will soon be put upon its passage provides for the admission of five States into the Union, if the people of Dakota shall determine on the division of that Territory. If they shall not favor such division, it will bring in four States at the beginning of the next session of Congress. The advantages of this measure over the Senate bill are these, that the Senate proposition only deals with Dakota while this deals with four of the present Territories and makes possible the creation of five great States.

"If the House should pass this Senate bill it would be all the legislation which we could reasonably expect in reference to new States at this session. South Dakota has no just grounds to claim this distinction, this special favor, this partiality at our hands, while more populous today than any other proposed State; yet North Dakota, Montana, Washington, and New Mexico have each a population above the ratio of one member in the House of Representatives, and are equally entitled to admission. Let them all come in together, not only upon an equal footing with the original States, but upon an equal footing as to each other.

"It is idle to speculate upon the future politics of these new States. All predictions on this subject are worthless. No man can tell what a year will bring forth in any of the Territories of the West. In 1892 South Dakota may cast her electoral vote for the nominees of the Democratic party, and Montana and New Mexico may be found on the other side. Nor should we consult our fears in a matter of this kind. Fear not the American people—they may all be safely trusted. Those who go West to better their conditions are generally the bravest, the wisest, and the most progressive. The broad plains and lofty mountains invariably expand their ideas and liberalize their minds. The man of contracted vision in the East becomes in the West broad-gauged and full of charity for all mankind. The great West is destined in the near future to furnish the country with its profoundest jurists, its wisest philosophers, its greatest statesmen."

On Feb. 1 the Senate non-concurred in the House substitute and appointed a conference committee; Feb. 2 the House appointed a like committee; and Feb. 8 the conferees reported that they could not come to an agreement. The Senate immediately appointed another conference committee; and Feb. 14, when the subject came up in the House, Mr. Baker, of New York, moved that the House conference committee be instructed as follows:

Resolved, That the House instruct the new conferees to recede from the amendments to the Senate bill 185 in the following respects:

1. That the Territory of New Mexico and the proposed new State thereof may be excluded from the bill.

2. That the bill may be so amended in conference as to provide for the admission of South Dakota by proclamation of the President, under the Sioux Falls Constitution, to be resubmitted to the people of South Dakota, with provisions for a new election of State officers, and without a new vote on the question of division.

3. Further providing that the proposed States of North Dakota, Montana, and Washington shall be admitted on the same basis, i. e.:

(a) All of them under proclamation by the President; or

(b) All of them by formal acts of admission.

In explanation of these instructions, Mr. Baker said: "The main point of course is, as the House will see, there is eliminated from the bill New Mexico. It is evident there can be no agreement for New Mexico under an enabling act. As to South Dakota, North Dakota, Montana, and Washington there is no difference of opinion. As to New Mexico there is wide difference on both sides of the House. Personally, I do not have any serious objection to considering New Mexico in this bill; but the differences are so marked we have agreed it shall be brought up in a separate bill for future consideration. Therefore under this instruction the conferees will eliminate from the bill New Mexico, and it will provide for the admission of Washington, Montana, and North Dakota by proclamation or by future legislation. As to the matter of details there will be no difficulty. If this be carried out by the House, it will give to the Union four new States before the end of the year."

Mr. Cox, of New York, moved the following substitute for these instructions which Mr. Baker accepted:

Resolved, That the House instruct the new conferees to recede from the amendment to the Senate bill 185 in the following respects:

1. That the Territory of New Mexico and the proposed new State thereof may be excluded from the bill.

2. That the bill may be so amended in conference as to provide for the admission of South Dakota by proclamation of the President under the Sioux Falls Constitution, to be resubmitted to the people of South Dakota, with provision for a new election of State and Federal officers and without a new vote on the question of division.

3. Further providing that the proposed States of North Dakota, Montana, and Washington shall be admitted on the same basis, i. e., all of them under proclamations by the President.

And further, such matters as relate to the election of delegates and the apportionment of the districts from which members of the convention are to be elected, the date of holding conventions and the date of resubmission of the South Dakota Constitution,

and the location of the temporary seat of government in South Dakota, and such other matters as are not included in the instructions above recited, be referred to the committee of conference for their discretion.

In explanation, he said: "It would seem that on three points the Senate and House differ. The House declared for New Mexico. The Senate opposes. The House declared for a submission of the question of division of Dakota. The Senate opposes such submission. The Senate favors, with a view to prevent delay, a proclamation by the President to bring in these Territories, and a resubmission, with which the House should be satisfied. To reconcile these disagreements is the object of my substitute. On these several points it is hoped that there may be a concurrence of the two branches, so that some law or finality shall be assured during the present session. There should not be undue delay nor hasty agreement. The subject-matter calls for moderation, discretion, and dignity.

"As to the first point of difference, I am well satisfied, as I have stated in remarks heretofore, that New Mexico, if admitted as a State, would be 'republican,' not merely in form, but in partisanship.

"She prepared a Constitution in 1876. The bill of admission passed both branches. It was lost through disagreement on amendments, just as she may now fail of admission. Any exclusion of the Territory on political grounds, whatever may be our party bias, is to be deprecated. It is therefore an act of great self-abnegation on the part of the Republicans of this House and of the Senate to reject New Mexico on grounds which I think are unsubstantial.

"If I am right in my judgment, and I have good foundation for it, it would now seem impossible to make New Mexico Democratic. Her last two Legislatures were heavily Republican, and at present there are over two thirds Republican majority in each branch. The election of our friend Mr. Joseph—the Delegate—in 1884, was owing to a split in the Republican party. But the two Republican candidates had a majority over Mr. Joseph of 2,851. The same vigilant gentleman was elected in 1886 owing to a bad nomination of the Republicans. His popularity was tested by his election in 1888, and it was owing to the fact that he championed the rights of the Territory to admission.

"These facts, in addition to other data, show, *a priori*, that New Mexico will be Republican, and if the Republican Senate insists that she shall not be admitted, I would not make my insistence too emphatic against their wishes. And, therefore, since it is impossible to agree with the Senate on that point, I would yield it. I would yield it, because I would not nullify, by the failure of this bill, the good work as to the other Territories already done by both Senate and House.

"To conclude as to New Mexico, Mr. Speaker, allow me to say that in former remarks I presented all the points possible in my judgment for her admission. I know, and so advise gentlemen on both sides of the House, that New Mexico will not be admitted by the action of the Senate now. They stand on that.

"As to the question of the division of Dakota, all who have taken the pains to inquire know

how absolutely foregone is that conclusion. For myself I would not vote for Dakota nor for this bill, unless she were divided—not even to conform to the wishes of every one of her people, whether expressed separately by North and South Dakota or by the Territory as a whole. My reasons have already been given, and they are insuperable.

"I would, therefore, yield to the Senate in that regard. The vote on the division is not a matter of great consequence, in view of the fact that it will not delay admission, and division is beyond peradventure.

"As to the third idea of admitting these Territories by proclamation of the President, I am entirely content, as I have said before. There are precedents as well as reasons for such action; and in view of long and irritating delays such precedents and reasons should have emphasis. I would follow them as to the other Territories which have provided Constitutions, and whose Constitutions, if they do not remain as the will of the people, may be resubmitted under such conditions as the conference made provide."

In opposition to this position, Mr. Breckenridge, of Kentucky, said: "The principle of the omnibus bill which justified the putting of four Territories into one bill was that each Territory which had a population sufficient for one Representative and wealth sufficient to maintain the burden of a State government should be admitted into the Union. It was on that principle, and that principle only, that an omnibus bill could be justified. Now we are asked to exclude from the bill New Mexico, which has all the requisites of Statehood, and to violate this principle, upon the sole ground that the Senate of the United States will not be in favor of the admission of that Territory, and this argument is made prior to the conference report being submitted to the Senate and prior to any instructions by that body to its conferees. It is our declaration in substance that we do not desire to admit New Mexico, and our justification of that declaration by laying it to the Senate, without the Senate having declared by instruction to its conferees that it agreed with us in that declaration. Therefore, the argument is not based upon the record, even if it were one that ought to influence us.

"It is not at all certain that if this House, representing the people, will insist that these four Territories shall become States the Senate will take the responsibility of holding those Territories any longer in a Territorial condition. If it be true that New Mexico ought to be admitted, if it be true that we think upon our official responsibility as representatives of the people that it ought to be admitted, it is our duty to throw the responsibility of excluding that Territory upon the co-ordinate branch of Congress and let it refuse to do what is right; and it is not becoming in us to say that we will recede from a righteous act giving Statehood to two hundred thousand people on the mere guess that the Senate will order its conferees not to agree to the admission of New Mexico. It is the only Territory in this bill whose admission has congressional approbation. In the Forty-third Congress a large majority of the Senate and the House voted that this Territory was then fit for Statehood; and in the Forty-fourth Congress the Sen-

ate (which is a continuous body, not dissolved, as the House is, every two years) reaffirmed this Senatorial judgment that New Mexico ought to be admitted. It is therefore the only Territory of which it can be said that both Houses of Congress have conceded, when it was more sparsely populated and less wealthy, that it was in a condition to be admitted into the Union.

"But, Mr. Speaker, admission into the Union is of itself a very great step in advance for a Territory. It is the cause of increased and more rapid development. And of all the Territories this remark will apply more truthfully and strongly to New Mexico than to any other. In the treaty by which we obtained New Mexico there were provisions about the titles of land which still remain to plague those people and to render their titles uncertain. Perhaps the greatest curse that a new country can have inflicted upon it is an uncertainty in the titles to its lands. Where a man can not buy a clear title to his homestead, especially when just across the line he can obtain cheap lands with perfect titles, he will not settle and invest his means. We shall never have those titles cleared up except under the sovereign power of the State in whose courts they can be settled. There are questions growing out of Indian depredations and other questions which need behind them for speedy settlement the power of a State.

"We declared fourteen years ago that New Mexico ought to be admitted. We declare it now. Why should she not be admitted? Gentlemen say, 'Because if you insist upon it you keep other communities from being admitted to privileges to which they are entitled.' The answer I make is: 'I do not; there is no such responsibility upon me; it is not I who do it.' I deny that this House, until the very last effort has been exhausted, until every possible endeavor has been made by conference, by respectful insistence, by earnest advocacy of the measure which we think just, has the right to surrender to the Senate what we believe to be proper. It is at the last moment that the wise statesmanship which resides in practical concessions is to be found. It is a violation of our duty and an abdication of our prerogatives if we give up before it is necessary.

"As to the proclamation, I am in favor of letting these Territories come in by proclamation when they fulfill the requirements of the statute. I have no desire to delay them. I would like to go a step further. I would like to put in the other Territories. I would like to put into this omnibus bill, if it were possible to do it, the Territories of Wyoming, Arizona, and Idaho; I would like to make a clean sweep, by having Utah admitted as soon as may be practicable. I would like to get rid of the "carpet-bag" government of the Territories. I would like to get rid of the anomalous condition we are in so long as we legislate at Washington for those great Territories. I believe they would, as States, increase with a great deal more rapidity. I believe the whole system of Territorial government is a mistake—a system which has grown up by accretion out of, perhaps, mistaken construction of very narrow provisions of the Constitution. And I believe that the rings and syndicates which can eat up those lands and control those Terri-

tories, because we are so far from them, and because we legislate in ignorance of their true condition, would find an end to their pilfering as soon as we make those Territories States.

"I therefore, Mr. Speaker, approach this subject, not as an enemy to the Territories, not as opposed to their admission, but as anxious for their admission as rapidly as possible. I trust that the House will insist until the very last possible moment upon this provision in favor of New Mexico. The responsibility will not rest upon us of keeping this and other Territories out of the Union by reason of a policy which will not admit a State that is ready to be admitted, whether such action grows out of political or religious prejudice, whether it grows out of the mere desire for political power, or whether it is based upon prejudices which find their root in religious differences. We ought to tender to the Senate in the name of a representative Union the proposition for this Territory to become a State, a Territory which they have said was competent for the duties of Statehood. If the Senate does not choose to accept this tender it is not our fault.

"For myself, Mr. Speaker, as to the whole political aspect of this question, I am not alarmed about it. I have no feeling of alarm as to the future.

"If the party to which I belong can not win the suffrages of those Western people; if by the arguments that will be submitted to them and by their sense of what is best for them, and by the exercise of intelligence we can not carry those States, then it is the duty of my party to submit to the verdict, and we can not complain if it be against us. Believing it important that we should get further and further from these Territorial and other disturbing questions; believing that until we get down to the great economic differences between parties we shall always have less strength than when we reach that issue, I am anxious for all these questions to be settled as quickly as possible."

In adopting the instructions there was a division of the question, and the House voted separately on each clause Feb. 14 and 15, there being some disposition shown to delay action. The vote on the instruction clause of the resolution was, yeas 148, nays 103.

Feb. 20, the conference committee's report was submitted and adopted as follows:

The committee of conference on the disagreeing votes of the two Houses on the amendment of the House to the bill of the Senate (S. 185) to provide for the admission of South Dakota into the Union and for the organization of the Territory of North Dakota, having met, after full and free conference have agreed to recommend and do recommend to their respective Houses as follows:

That the Senate recede from its disagreement to the amendment of the House to said bill and agree to the same with an amendment, namely: Strike out all of said amendment and in lieu thereof insert the following:

"SECTION 1. That the inhabitants of all that part of the area of the United States now constituting the Territories of Dakota, Montana, and Washington, as at present described, may become the States of North Dakota, South Dakota, Montana, and Washington, respectively, as hereinafter provided.

"SEC. 2. The area comprising the Territory of Dakota shall, for the purposes of this act, be divided on the line of the seventh standard parallel produced due

west to the western boundary of said Territory; and the delegates elected as hereinafter provided to the Constitutional Convention in districts north of said parallel shall assemble in convention, at the time prescribed in this act, at the city of Bismarek; and the delegates elected in districts south of said parallel shall, at the same time, assemble in convention at the city of Sioux Falls.

"SEC. 3. That all persons who are qualified by the laws of said Territories to vote for representatives to the Legislative Assemblies thereof, are hereby authorized to vote for and choose delegates to form conventions in said proposed States; and the qualifications for delegates to such conventions shall be such as by the laws of said Territories respectively persons are required to possess to be eligible to the Legislative Assemblies thereof; and the aforesaid delegates to form said conventions shall be apportioned within the limits of the proposed States in such districts as may be established as herein provided, in proportion to the population in each of said counties and districts, as near as may be, to be ascertained at the time of making said apportionments by the persons hereinafter authorized to make the same, from the best information obtainable, in each of which districts three delegates shall be elected, but no elector shall vote for more than two persons for delegates to such conventions; that said appointments shall be made by the Governor, the Chief Justice, and the Secretary of said Territories; and the Governors of said Territories shall, by proclamation, order an election of the delegates aforesaid in each of said proposed States, to be held on the Tuesday after the second Monday in May, 1889, which proclamation shall be issued on the 15th day of April, 1889; and such election shall be conducted, the returns made, the result ascertained, and the certificates to persons elected to such convention issued in the same manner as is prescribed by the laws of the said Territories regulating elections therein for delegates to Congress; and the number of votes cast for delegates in each precinct shall also be returned. The number of delegates to said conventions respectively shall be seventy-five; and all persons resident in said proposed States, who are qualified voters of said Territories as herein provided, shall be entitled to vote upon the election of delegates, and under such rules and regulations as said conventions may prescribe not in conflict with this act, upon the ratification or rejection of the Constitutions.

"SEC. 4. That the delegates to the conventions elected as provided in this act shall meet at the seat of government of each of said Territories, except the delegates elected in South Dakota, who shall meet at the city of Sioux Falls, on the 4th day of July, 1889, and, after organization, shall declare on behalf of the people of said proposed States that they adopt the Constitution of the United States; whereupon the said conventions shall be, and are hereby, authorized to form Constitutions and State governments for said proposed States, respectively. The Constitutions shall be republican in form, and make no distinction in civil or political rights on account of race or color, except as to Indians not taxed, and not be repugnant to the Constitution of the United States and the principles of the Declaration of Independence. And said conventions shall provide, by ordinances irrevocable without the consent of the United States and the people of said States:

"1. That perfect toleration of religious sentiment shall be secured, and that no inhabitant of said States shall ever be molested in person or property on account of his or her mode of religious worship.

"2. That the people inhabiting said proposed States do agree and declare that they forever disclaim all right and title to the unappropriated public lands lying within the boundaries thereof, and to all lands lying within said limits owned or held by any Indian or Indian tribes; and that until the title thereto shall have been extinguished by the United States, the same shall be and remain subject to the disposition of the United States, and said Indian lands shall remain

under the absolute jurisdiction and control of the Congress of the United States; that the lands belonging to citizens of the United States residing without the said States shall never be taxed at a higher rate than the lands belonging to residents thereof; that no taxes shall be imposed by the States on lands or property therein belonging to or which may hereafter be purchased by the United States or reserved for its use. But nothing herein, or in the ordinances herein provided for, shall preclude the said States from taxing as other lands are taxed any lands owned or held by any Indian who has severed his tribal relations, and has obtained from the United States or from any person a title thereto by patent or other grant, save and except such lands as have been or may be granted to any Indian or Indians under any act of Congress containing a provision exempting the lands thus granted from taxation; but said ordinances shall provide that all such lands shall be exempt from taxation by said States so long and to such an extent as such act of Congress may prescribe.

"3. That the debts and liabilities of said Territories shall be assumed and paid by said States, respectively.

"4. That provision shall be made for the establishment and maintenance of systems of public schools, which shall be open to all the children of said States, and free from sectarian control.

"SEC. 5. That the convention which shall assemble at Bismarek shall form a Constitution and State government for a State to be known as North Dakota, and the convention which shall assemble at Sioux Falls shall form a Constitution and State government for a State to be known as South Dakota; *Provided*, That at the election for delegates to the Constitutional Convention in South Dakota, as hereinbefore provided, each elector may have written or printed on his ballot the words 'For the Sioux Falls Constitution,' or the words 'Against the Sioux Falls Constitution,' and the votes on this question shall be returned and canvassed in the same manner as for the election provided for in section 3 of this act; and if a majority of all votes cast on this question shall be 'For the Sioux Falls Constitution' it shall be the duty of the convention which may assemble at Sioux Falls, as herein provided, to resubmit to the people of South Dakota, for ratification or rejection at the election hereinafter provided for in this act, the Constitution framed at Sioux Falls and adopted November 3, 1885, and also the articles and propositions separately submitted at that election, including the question of locating the temporary seat of government, with such changes only as relate to the name and boundary of the proposed State, to the reapportionment of the judicial and legislative districts, and such amendments as may be necessary in order to comply with the provisions of this act; and if a majority of the votes cast on the ratification or rejection of the Constitution shall be for the Constitution irrespective of the articles separately submitted, the State of South Dakota shall be admitted as a State in the Union under said Constitution as hereinafter provided; but the archives, records, and books of the Territory of Dakota shall remain at Bismarek, the capital of North Dakota, until an agreement in reference thereto is reached by said States. But if at the election for delegates to the Constitutional Convention in South Dakota, a majority of all the votes cast at that election shall be 'Against the Sioux Falls Constitution,' then and in that event it shall be the duty of the convention which will assemble at the city of Sioux Falls on the 4th day of July, 1889, to proceed to form a Constitution and State government as provided in this act the same as if that question had not been submitted to a vote of the people of South Dakota.

"SEC. 6. It shall be the duty of the Constitutional Conventions of North Dakota and South Dakota to appoint a joint commission, to be composed of not less than three members of each convention, whose duty it shall be to assemble at Bismarek, the present seat of government of said Territory, and agree upon

an equitable division of all property belonging to the Territory of Dakota, the disposition of all public records, and also adjust and agree upon the amount of the debts and liabilities of the Territory, which shall be assumed and paid by each of the proposed States of North Dakota and South Dakota; and the agreement reached respecting the Territorial debts and liabilities shall be incorporated in the respective Constitutions, and each of said States shall obligate itself to pay its proportion of such debts and liabilities the same as if they had been created by such States respectively.

"SEC. 7. If the Constitutions formed for both North Dakota and South Dakota shall be rejected by the people at the elections for the ratification or rejection of their respective Constitutions as provided for in this act, the Territorial government of Dakota shall continue in existence the same as if this act had not been passed. But if the Constitution formed for either North Dakota or South Dakota shall be rejected by the people, that part of the Territory so rejecting its proposed Constitution shall continue under the Territorial government of the present Territory of Dakota, but shall, after the State adopting its Constitution is admitted into the Union, be called by the name of the Territory of North Dakota or South Dakota, as the case may be: *Provided*, That if either of the proposed States provided for in this act shall reject the Constitution which may be submitted for ratification or rejection at the election provided therefor, the Governor of the Territory in which such proposed Constitution was rejected shall issue his proclamation reconvening the delegates elected to the convention which formed such rejected Constitution, fixing the time and place at which said delegates shall assemble; and when so assembled they shall proceed to form another Constitution or to amend the rejected Constitution, and shall submit such new Constitution or amended Constitution to the people of the proposed State for ratification or rejection, at such time as said convention may determine; and all the provisions of this act, so far as applicable, shall apply to such convention so reassembled and to the Constitution which may be formed, its ratification or rejection, and to the admission of the proposed State.

"SEC. 8. That the Constitutional Convention which may assemble in South Dakota shall provide by ordinance for resubmitting the Sioux Falls Constitution of 1885, after having amended the same as provided in section 5 of this act, to the people of South Dakota for ratification or rejection at an election to be held therein on the first Tuesday in October, 1889; but if said Constitutional Convention is authorized and required to form a new Constitution for South Dakota it shall provide for submitting the same in like manner to the people of South Dakota for ratification or rejection at an election to be held in said proposed State on the said first Tuesday in October. And the Constitutional Conventions which may assemble in North Dakota, Montana, and Washington shall provide in like manner for submitting the Constitutions formed by them to the people of said proposed States, respectively, for ratification or rejection at elections to be held in said proposed States on the first Tuesday in October. At the elections provided for in this section the qualified voters of said proposed States shall vote directly for or against the proposed Constitutions, and for or against any articles or propositions separately submitted. The returns of said elections shall be made to the Secretary of each of said Territories, who, with the Governor and Chief Justice thereof, or any two of them, shall canvass the same; and if a majority of the legal votes cast shall be for the Constitution, the Governor shall certify the result to the President of the United States, together with a statement of the votes cast thereon and upon separate articles or propositions, and a copy of said Constitution, articles, propositions, and ordinances. And if the Constitutions and governments of said proposed States are republican in form, and if all the provisions of this act have been complied with in the formation thereof, it shall be the

duty of the President of the United States to issue his proclamation announcing the result of the election in each, and thereupon the proposed States which have adopted Constitutions and formed State governments as herein provided shall be deemed admitted by Congress into the Union under and by virtue of this act on an equal footing with the original States from and after the date of said proclamation.

"SEC. 9. That until the next general census, or until otherwise provided by law, said States shall be entitled to one Representative in the House of Representatives of the United States, except South Dakota, which shall be entitled to two; and the Representatives to the Fifty-first Congress, together with the Governors and other officers provided for in said Constitutions, may be elected on the same day of the election for the ratification or rejection of the Constitutions; and until said State officers are elected and qualified under the provisions of each Constitution and the States, respectively, are admitted into the Union, the Territorial officers shall continue to discharge the duties of their respective offices in each of said Territories.

"SEC. 10. That upon the admission of each of said States into the Union sections numbered 16 and 36 in every township of said proposed States, and where such sections or any parts thereof have been sold or otherwise disposed of by or under the authority of any act of Congress, other lands equivalent thereto, in legal subdivisions of not less than one quarter section, and as contiguous as may be to the section in lieu of which the same is taken, are hereby granted to said States for the support of common schools, such indemnity lands to be selected within said States in such manner as the Legislature may provide, with the approval of the Secretary of the Interior: *Provided*, That the sixteenth and thirty-sixth sections embraced in permanent reservations for national purposes shall not, at any time, be subject to the grants nor to the indemnity provisions of this act, nor shall any lands embraced in Indian, military, or other reservations of any character be subject to the grants or to the indemnity provisions of this act until the reservation shall have been extinguished and such lands be restored to, and become a part of, the public domain.

"SEC. 11. That all lands herein granted for educational purposes shall be disposed of only at public sale, and at a price not less than \$10 per acre, the proceeds to constitute a permanent school fund, the interest of which only shall be expended in the support of said schools. But said lands may, under such regulations as the Legislature shall prescribe, be leased for periods of not more than five years, in quantities not exceeding one section to any one person or company; and such land shall not be subject to pre-emption, homestead entry, or any other entry under the land laws of the United States, whether surveyed or unsurveyed, but shall be reserved for school purposes only.

"SEC. 12. That upon the admission of each of said States into the Union, in accordance with the provisions of this act, fifty sections of the unappropriated public lands within said States, to be selected and located in legal subdivisions as provided in section 10 of this act, shall be, and are hereby, granted to said States for the purpose of erecting public buildings at the capital of said States for legislative, executive, and judicial purposes.

"SEC. 13. That 5 per cent. of the proceeds of the sales of public lands lying within said States which shall be sold by the United States subsequent to the admission of said States into the Union, after deducting all the expenses incident to the same, shall be paid to the said States, to be used as a permanent fund, the interest of which only shall be expended for the support of the common schools within said State, respectively.

"SEC. 14. That the lands granted to the Territories of Dakota and Montana by the act of Feb. 18, 1881, entitled 'An act to grant lands to Dakota, Montana,

Arizona, Idaho, and Wyoming for university purposes,' are hereby vested in the States of South Dakota, North Dakota, and Montana, respectively, if such States are admitted into the Union, as provided in this act, to the extent of the full quantity of seventy-two sections to each of said States, and any portion of said lands that may not have been selected by either of said Territories of Dakota or Montana may be selected by the respective States aforesaid; but said act of Feb. 18, 1881, shall be so amended as to provide that none of said lands shall be sold for less than \$10 per acre, and the proceeds shall constitute a permanent fund to be safely invested and held by said States severally, and the income thereof be used exclusively for university purposes. And such quantity of the lands authorized by the fourth section of the act of July 17, 1854, to be reserved for university purposes in the Territory of Washington, as, together with the lands confirmed to the vendees of the Territory, by the act of March 14, 1864, will make the full quantity of seventy-two entire sections, are hereby granted in like manner to the State of Washington for the purposes of a university in said State. None of the lands granted in this section shall be sold at less than \$10 per acre; but said lands may be leased in the same manner as provided in section 11 of this act. The schools, colleges, and universities provided for in this act shall forever remain under the exclusive control of the said States, respectively, and no part of the proceeds arising from the sale or disposal of any lands herein granted for educational purposes shall be used for the support of any sectarian or denominational school, college, or university. The section of land granted by the act of June 16, 1880, to the Territory of Dakota, for an asylum for the insane shall, upon the admission of said State of South Dakota into the Union, become the property of said State.

"SEC. 15. That so much of the lands belonging to the United States as have been acquired and set apart for the purpose mentioned in 'An act appropriating money for the erection of a penitentiary in the Territory of Dakota,' approved March 2, 1881, together with the buildings thereon, be, and the same is hereby granted, together with any unexpended balances of the moneys appropriated therefor by said act, to said State of South Dakota, for the purposes therein designated; and the States of North Dakota and Washington shall, respectively, have like grants for the same purpose, and subject to like terms and conditions as provided in said act of March 2, 1881, for the Territory of Dakota. The penitentiary at Deer Lodge City, Mont., and all lands connected therewith and set apart and reserved therefor, are hereby granted to the State of Montana.

SEC. 16. That 90,000 acres of land, to be selected and located as provided in section 10 of this act, are hereby granted to each of said States, except to the State of South Dakota, to which 120,000 acres are granted, for the use and support of agricultural colleges in said States, as provided in the acts of Congress making donations of lands for such purpose.

"SEC. 17. That in lieu of the grant of land for purposes of internal improvement made to new States by the eighth section of the act of Sept. 4, 1841, which act is hereby repealed as to the States provided for by this act, and in lieu of any claim or demand by the said States, or either of them, under the act of Sept. 28, 1850, and section 2,479 of the Revised Statutes, making a grant of swamp and overflowed lands to certain States, which grant it is hereby declared, is not extended to the States provided for in this act, and in lieu of any grant of saline lands to said States, the following grants of land are hereby made, to wit:

"To the State of South Dakota: For the School of Mines, 40,000 acres; for the Reform School, 40,000 acres; for the Deaf and Dumb Asylum, 40,000 acres; for the Agricultural College, 40,000 acres; for the university, 40,000 acres; for State normal schools 80,000 acres; for public buildings at the capital of said State,

50,000 acres; and for such other educational and charitable purposes as the Legislature of said State may determine, 170,000 acres; in all 500,000 acres.

"To the State of North Dakota a like quantity of land as is in this section granted to the State of South Dakota, and to be for like purposes, and in like proportion as far as practicable.

"To the State of Montana: For the establishment and maintenance of a school of mines, 100,000 acres; for State normal schools, 100,000 acres; for agricultural colleges, in addition to the grant hereinbefore made for that purpose, 50,000 acres; for the establishment of a State reform school, 50,000 acres; for the establishment of a deaf and dumb asylum, 50,000 acres; for public buildings at the capital of the State, in addition to the grant hereinbefore made for that purpose, 150,000 acres.

"To the State of Washington: For the establishment and maintenance of a scientific school, 100,000 acres; for State normal schools, 100,000 acres; for public buildings at the State capital, in addition to the grant hereinbefore made for that purpose, 100,000 acres; for State charitable, educational, penal, and reformatory institutions, 200,000 acres.

"That the States provided for in this act shall not be entitled to any further or other grants of land for any purpose than as expressly provided in this act. And the lands granted by this section shall be held, appropriated, and disposed of exclusively for the purposes herein mentioned, in such manner as the Legislatures of the respective States may severally provide.

"SEC. 18. That all mineral lands shall be exempted from the grants made by this act. But if sections 16 and 36, or any subdivision or portion of any smallest subdivision thereof in any township shall be found by the Department of the Interior to be mineral lands, said States are hereby authorized and empowered to select, in legal subdivisions, an equal quantity of other unappropriated lands in said States, in lieu thereof, for the use and the benefit of the common schools of said States.

"SEC. 19. That all lands granted in quantity or as indemnity by this act shall be selected, under the direction of the Secretary of the Interior, from the surveyed, unreserved, and unappropriated public lands of the United States within the limits of the respective States entitled thereto. And there shall be deducted from the number of acres of land donated by this act for specific objects to said States the number of acres in each heretofore donated by Congress to said Territories for similar objects.

"SEC. 20. That the sum of \$20,000, or so much thereof as may be necessary, is hereby appropriated, out of any money in the Treasury not otherwise appropriated, to each of said territories for defraying the expenses of the said conventions, except to Dakota, for which the sum of \$40,000 is so appropriated, \$20,000 each for South Dakota and North Dakota, and for the payment of the members thereof, under the same rules and regulations and at the same rates as are now provided by law for the payment of the Territorial Legislatures. Any money hereby appropriated not necessary for such purpose shall be covered into the Treasury of the United States.

"SEC. 21. That each of said States, when admitted, as aforesaid, shall constitute one judicial district, the names thereof to be the same as the names of the States, respectively; and the circuit and district courts therefor shall be held at the capital of such State for the time being, and each of said districts shall, for judicial purposes, until otherwise provided, be attached to the Eighth Judicial Circuit, except Washington and Montana, which shall be attached to the Ninth Judicial Circuit. There shall be appointed for each of said districts one district judge, one United States attorney, and one United States marshal. The judge of each of said districts shall receive a yearly salary of \$3,500, payable in four equal installments, on the 1st days of January, April, July, and October of each year, and shall reside in the district. There shall be appointed clerks of said courts in each district, who

shall keep their offices at the capital of said State. The regular terms of said courts shall be held in each district, at the place aforesaid, on the first Monday in April and the first Monday in November of each year, and only one grand jury and one petit jury shall be summoned in both said circuit and district courts. The circuit and district courts for each of said districts, and the judges thereof, respectively, shall possess the same powers and jurisdiction, and perform the same duties required to be performed by the other circuit and district courts and judges of the United States, and shall be governed by the same laws and regulations. The marshal, district attorney, and clerks of the circuit and district courts of each of said districts, and all other officers and persons performing duties in the administration of justice therein, shall severally possess the powers and perform the duties lawfully possessed and required to be performed by similar officers in other districts of the United States; and shall, for the services they may perform, receive the fees and compensation allowed by law to other similar officers and persons performing similar duties in the State of Nebraska.

"SEC. 22. That all cases of appeal or writ of error heretofore prosecuted and now pending in the Supreme Court of the United States upon any record from the supreme court of either of the Territories mentioned in this act, or that may hereafter lawfully be prosecuted upon any record from either of said courts, may be heard and determined by said Supreme Court of the United States. And the mandate of execution or of further proceedings shall be directed by the Supreme Court of the United States to the circuit or district court hereby established within the State succeeding the Territory from which such record is or may be pending, or to the supreme court of such State, as the nature of the case may require: *Provided*, That the mandate of execution or of further proceedings shall, in cases arising in the Territory of Dakota, be directed by the Supreme Court of the United States to the circuit or district court of the district of South Dakota, or to the supreme court of the State of South Dakota, or to the circuit or district court of the district of North Dakota, or to the supreme court of the State of North Dakota, or to the supreme court of the Territory of North Dakota, as the nature of the case may require. And each of the circuit, district, and State courts herein named shall, respectively, be the successor of the supreme court of the Territory as to all such cases arising within the limits embraced within the jurisdiction of such courts, respectively, with full power to proceed within the same, and award mesne or final process therein; and that from all judgments and decrees of the supreme court of either of the Territories mentioned in this act, in any case arising within the limits of any of the proposed States prior to admission, the parties to such judgment shall have the same right to prosecute appeals and writs of error to the Supreme Court of the United States as they shall have had by law prior to the admission of said State into the Union.

"SEC. 23. That in respect to all cases, proceedings, and matters now pending in the supreme or district courts of either of the Territories mentioned in this act at the time of the admission into the Union of either of the States mentioned in this act, and arising within the limits of any such State, whereof the circuit or district courts by this act established might have had jurisdiction under the laws of the United States had such courts existed at the time of the commencement of such cases, the said circuit and district courts, respectively, shall be the successors of said supreme and district courts of said Territory; and in respect to all other cases, proceedings, and matters pending in the supreme or district courts of any of the Territories mentioned in this act at the time of the admission of such Territory into the Union, arising within the limits of said proposed State, the courts established by such State shall, respectively, be the successors of said supreme and district Territorial courts; and all the files, records, indict-

ments, and proceedings relating to any such cases shall be transferred to such circuit, district, and State courts, respectively, and the same shall be proceeded with therein in due course of law; but no writ, action, indictment, cause, or proceeding now pending, or that prior to the admission of any of the States mentioned in this act shall be pending in any Territorial court in any of the Territories mentioned in this act, shall abate by the admission of any such State into the Union, but the same shall be transferred and proceeded with in the proper United States circuit, district, or State court, as the case may be; *Provided, however,* That in all civil actions, causes, and proceedings, in which the United States is not a party, transfers shall not be made to the circuit and district courts of the United States except upon written request of one of the parties to such action or proceeding filed in the proper court; and in the absence of such request, such cases shall be proceeded with in the proper State courts.

"Sec. 24. That the Constitutional Conventions may, by ordinance, provide for the election of officers for full State governments, including members of the Legislatures and Representatives in the Fifty-first Congress; but said State governments shall remain in abeyance until the States shall be admitted into the Union, respectively, as provided in this act. In case the Constitution of any of said proposed States shall be ratified by the people, but not otherwise, the Legislature thereof may assemble, organize, and elect two Senators of the United States; and the Governor and Secretary of State of such proposed State shall certify the election of the Senators and Representatives in the manner required by law; and when such State is admitted into the Union the Senators and Representatives shall be entitled to be admitted to seats in Congress and to all the rights and privileges of Senators and Representatives of other States in the Congress of the United States; and the officers of the State governments formed in pursuance of said Constitutions, as provided by the Constitutional Conventions, shall proceed to exercise all the functions of such State officers; and all laws in force made by said Territories at the time of their admission into the Union shall be in force in said States, except as modified or changed by this act or by the Constitutions of the States, respectively.

"Sec. 25. That all acts or parts of acts in conflict with the provisions of this act, whether passed by the Legislatures of said Territories or by Congress, are hereby repealed."

And that the House agree to the same.

That the Senate recede from its disagreement to the amendment of the House to the title of said bill and agrees to the same so amended as to read as follows:

"An act to provide for the division of Dakota into two States and to enable the people of North Dakota, South Dakota, Montana, and Washington, to form Constitutions and State governments, and to be admitted into the Union on an equal footing with the original States, and to make donations of public lands to such States."

And that the House agree to the same.

That the Senate recede from its disagreement to the amendment of the House striking out the preamble of said bill, and agree to the same.

On Feb. 22 the President approved the bill.

Refunding the Direct Tax.—The bill to credit and pay to the several States and Territories and the District of Columbia all moneys collected under the direct tax levied by an act of Congress approved Aug. 5, 1861, was amended and passed the House Dec. 12, 1888. The principal amendment was in regard to refunding to the owners of certain lands in South Carolina, sold in the collection of the direct tax, a portion of the value of their lands. The Senate non-concurred in the House amendments, and a confer-

ence committee was appointed, which came to an agreement, after recasting the above-named amendment, and reported Feb. 16, 1889, to the Senate, and Feb. 19, to the House. The Senate accepted the conference report at once, but an attempt was made to reconsider the acceptance, which was defeated on Feb. 19, after some discussion. The House accepted the conference report Feb. 20, but not without a renewal of the earnest discussion that marked the original consideration of the measure. On March 2 the President disapproved of the measure, and sent in the following veto message:

To the Senate:

I herewith return without approval Senate bill No. 139, entitled "An act to credit and pay to the several States and Territories and the District of Columbia all moneys collected under the direct tax levied by the act of Congress approved Aug. 5, 1861."

The object of this bill is quite clearly indicated in its title. Its provisions have been much discussed in both branches of Congress and have received emphatic legislative sanction. I fully appreciate the interest which it has excited, and have by no means failed to recognize the persuasive presentation made in its favor. I know, too, that the interposition of Executive disapproval in this case is likely to arouse irritation and cause complaint and earnest criticism. Since, however, my judgment will not permit me to assent to the legislation proposed, I can find no way of turning aside from what appears to be the plain course of official duty.

On the 5th day of August, 1861, a Federal statute was passed entitled "An act to provide increased revenue from imports to pay interest on the public debt, and for other purposes."

This law was passed at a time when immense sums of money were needed by the Government for the prosecution of a war for the Union, and the purpose of the law was to increase in almost every possible way the Federal revenues. The first seven sections of the statute were devoted to advancing very largely the rates of duties on imports; and to supplement this the eighth section provided that a direct tax of \$20,000,000 should be annually laid, and that certain amounts therein specified should be apportioned to the respective States. The remainder of the law, consisting of fifty sections, contained the most particular and detailed provisions for the collection of the tax through Federal machinery.

It was declared, among other things, that the tax should be assessed and laid on all lands and lots of ground with their improvements and dwelling-houses; that the annual amount of said taxes should be a lien upon all lands and real estate of the individuals assessed for the same, and that in default of payment the said taxes might be collected by distraint and sale of the goods, chattels, and effects of the delinquent persons.

This tax was laid in execution of the power conferred upon the General Government for that purpose by the Constitution. It was an exercise of the right of the Government to tax its citizens. It dealt with individuals, and the strong arm of Federal power was stretched out to exact from those who owed it support and allegiance their just share of the sum it had decreed should be raised by direct taxation for the general good. The lien created by this tax was upon the land and real estate of the "individuals" assessed for the same, and for its collection the distraint and sale of personal property of the "persons delinquent" were permitted.

But while the direct relationship and responsibility between the individuals taxed and the Federal Government were thus created by the exercise of the highest attribute of sovereignty, it was provided in the statute that any State or Territory and the District of Columbia might lawfully "assume, assess, collect, and pay

into the Treasury of the United States" its quota of said tax in its own way and manner, and by and through its own officers, assessors, and collectors; and it was further provided that such States or Territories as should give notice of their intention to thus assume and pay, or to assess, collect, and pay into the Treasury of the United States such direct tax, should be entitled in lieu of the compensation, pay per diem, and percentage in said act prescribed and allowed to assessors, assistant assessors, and collectors of the United States, a deduction of 15 per cent. of the quota of direct tax apportioned to such States or Territories and levied and collected through their officers.

It was also provided by this law and another passed the next year that certain claims of the States and Territories against the United States might be applied in payment of such quotas. Whatever may be said as to the effect of these provisions of the law, it can hardly be claimed that by virtue thereof or under any proceedings under them the apportioned quotas of this tax became debts against the several States and Territories, or that they were liable to the General Government therefor in every event and as principal debtors bound by an enforceable obligation.

In the forty-sixth section of the law it is provided that in case any State, Territory, or the District of Columbia, after notice given of its intention to assume and pay, or to levy, collect, and pay said direct tax apportioned to it, should fail to pay the amount of said direct tax, or any part thereof, it should be lawful for the Secretary of the Treasury to appoint United States officers as in the act provided, whose duty it should be to proceed forthwith to collect all or any part of said direct tax, "the same as though said State, Territory, or District had not given notice nor assumed to levy, collect, and pay said taxes, or any part thereof."

A majority of the States undertook the collection of their quotas, and accounted for the amount thereof to the General Government by the payment of money or by setting off claims in their favor against the tax. Fifteen per cent. of the amount of their respective quotas was retained as the allowance for collection and payment. In the Northern, or such as were then called the loyal, States nearly the entire quotas were collected and paid through State agencies. The money necessary for this purpose was generally collected from the citizens of the States with their other taxes, and in whatever manner their quotas may have been canceled, whether by the payment of money or setting off claims against the Government, it is safe to say, as a general proposition, that the people of these States have individually been obliged to pay the assessments made upon them on account of this direct tax, and have intrusted it to their several States to be transmitted to the Federal Treasury.

In the Southern States, then in insurrection, whatever was actually realized in money upon this tax was collected directly by Federal officers without the interposition of State machinery; and a part of its quota has been credited to each of these States.

The entire amount applied upon this tax, including the 15 per cent. for collection, was credited to the several States and Territories upon the books of the Treasury, whether collected through their instrumentalities or by Federal officers.

The sum credited to all the States was \$17,359,685.51, which includes more than \$2,000,000 on account of the 15 per cent. allowed for collecting. Of the amount credited only about \$2,300,000 is credited to the insurrectionary States. The amount uncollected of the twenty millions directed to be raised by this tax was \$2,646,314.49, and nearly this entire sum remained due upon the quotas apportioned to these States.

In this condition of affairs the bill under consideration directs the Secretary of the Treasury "to credit to each State and Territory of the United States and the District of Columbia a sum equal to all collections, by set-off or otherwise, made from said States and Territories and the District of Columbia, or from any

of the citizens or inhabitants thereof or other persons, under the act of Congress approved August 5, 1861, and the amendatory acts thereto." An appropriation is also made of such a sum as may be necessary to reimburse each State, Territory, and the District of Columbia for all money found due to it under the provisions of the bill, and it is provided that all money still due to the United States on said direct tax shall be remitted and relinquished.

The conceded effect of this bill is to take from the money now in the Treasury the sum of more than \$17,000,000, or, if the percentage allowed is not included, more than \$15,000,000, and pay back to the respective States and Territories the sums they or their citizens paid more than twenty-five years ago upon a direct tax levied by the Government of the United States for its defense and safety.

It is my belief that this appropriation of the public funds is not within the constitutional power of the Congress. Under the limited and delegated authority conferred by the Constitution upon the General Government the statement of the purpose for which money may be lawfully raised by taxation in any form declares also the limit of objects for which it may be expended.

All must agree that the direct tax was lawfully and constitutionally laid, and that it was rightfully and correctly collected. It can not be claimed, therefore, nor is it pretended, that any debt arose against the Government and in favor of any State or individual by the exaction of this tax. Surely, then, the appropriation directed by this bill can not be justified as a payment of a debt of the United States.

The disbursement of this money clearly has no relation to the common defense. On the contrary, it is the repayment of money raised and long ago expended by the Government to provide for the common defense.

The expenditure can not properly be advocated on the ground that the general welfare of the United States is thereby provided for or promoted. This "general welfare of the United States," as used in the Constitution, can only justify appropriations for national objects and for purposes which have to do with the prosperity, the growth, the honor, or the peace and dignity of the nation.

A sheer, bald gratuity, bestowed either upon States or individuals, based upon no better reason than supports the gift proposed in this bill, has never been claimed to be a provision for the general welfare. More than fifty years ago a surplus of public money in the Treasury was distributed among the States; but the unconstitutionality of such distribution, considered as a gift of money, appears to have been conceded, for it was put into the State treasuries under the guise of a deposit or loan, subject to the demand of the Government.

If it was proposed to raise by assessment upon the people the sum necessary to refund the money collected upon this direct tax I am sure many who are now silent would insist upon the limitations of the Constitution in opposition to such a scheme. A large surplus in the Treasury is the parent of many ills, and among them is found a tendency to an extremely liberal if not loose construction of the Constitution. It also attracts the gaze of States and individuals with a kind of fascination, and gives rise to plans and pretensions that an uncongested Treasury never could excite.

But if the constitutional question involved in the consideration of this bill should be determined in its favor, there are other objections remaining which prevent my assent to its provisions.

There should be a certainty and stability about the enforcement of taxation which should teach the citizen that the Government will only use the power to tax in cases where its necessity and justice are not doubtful, and which should also discourage the disturbing idea that the exercise of this power may be revoked by reimbursement of taxes once collected. Any other theory cheapens and in a measure discredits a process

which more than any other is a manifestation of sovereign authority.

A government is not only kind, but performs its highest duty when it restores to the citizen taxes unlawfully collected, or which have been erroneously or oppressively extorted by its agents or officers; but, aside from these incidents, the people should not be familiarized with the spectacle of their Government repenting the collection of taxes and restoring them.

The direct tax levied in 1861 is not even suspected of invalidity; there never was a tax levied which was more needed, and its justice can not be questioned. Why, then, should it be returned?

The fact that the entire tax was not paid furnishes no reason that would not apply to every case where taxes are laid. There are always delinquents, and while the more thorough and complete collection of taxes is a troublesome problem of government, the failure to solve the problem has never been held to call for the return of taxes actually collected.

The deficiency in the collection of this tax is found almost entirely in the insurrectionary States, while the quotas apportioned to the other States were, as a general rule, fully paid, and three fourths or four fifths of the money which it is proposed in this bill to return would be paid into the treasuries of the loyal States. But no valid reason for such payment is found in the fact that the Government at first could not, and afterward, for reasons probably perfectly valid, did not enforce collection in the other States.

There were many Federal taxes which were not paid by the people in the rebellious States; and if the non-payment by them of this direct tax entitles the other States to a donation of the share of said taxes paid by their citizens, why should not the income tax and many other internal taxes paid entirely by the citizens of loyal States be also paid into the treasuries of these States? Considerations which recognize sectional divisions or the loyalty of the different States at the time this tax was laid should not enter into the discussion of the merits of this measure.

The loyal States should not be paid the large sums of money promised them by this bill because they were loyal and other States were not, nor should the States which rebelled against the Government be paid the smaller sum promised them because they were in rebellion and thus prevented the collection of their entire quotas, nor because this concession to them is necessary to justify the proposed larger gifts to the other States.

The people of the loyal States paid this direct tax as they bore other burdens in support of the Government, and I believe the tax-payers themselves are content. In the light of these considerations, I am opposed to the payment of money from the Federal Treasury to enrich the treasuries of the States. Their funds should be furnished by their own citizens, and thus should be fostered the tax-payers' watchfulness of State expenditures and the tax-payers' jealous insistence upon the strict accountability of State officials. These elements of purity and strength in a State are not safely exchanged for the threatened demoralization and carelessness attending the custody and management of large gifts from the Federal Treasury.

The baneful effect of a surplus in the Treasury of the General Government is daily seen and felt. I do not think, however, that this surplus should be reduced or its contagion spread throughout the States by methods such as are provided in this bill.

There is still another objection to the bill, arising from what seems to me its unfairness and unjust discrimination.

In the case of proposed legislation of at least doubtful constitutionality, and based upon no legal right, the equities which recommend it should always be definite and clear.

The money appropriated by this bill is to be paid to the governors of the respective States and Territories in which it was collected, whether the same was derived through said States and Territories or directly "from any of the citizens or inhabitants there-

of or other persons"; and it is further provided that such sums as were collected in payment of this Federal tax through the instrumentality of the State or Territorial officials, and accounted for to the General Government by such States and Territories, are to be paid unconditionally to their governors, while the same collected in payment of said tax by the United States, or, in other words, by the Federal machinery created for that purpose, are to be held in trust by said States or Territories for the benefit of those paying the same.

I am unable to understand how this discrimination in favor of those who have made payment of this tax directly to the officers of the Federal Government, and against those who made such payments through State or Territorial agencies, can be defended upon fair and equitable principles. It was the General Government in every case which exacted this tax from its citizens and people in the different States and Territories, and to provide for reimbursement to a part of its citizens by the creation of a trust for their benefit, while money exacted in payment of this tax from a far greater number is paid unconditionally into the State and Territorial treasuries, is an unjust and unfair proceeding in which the Government should not be implicated.

It will hardly do to say that the States and Territories who are the recipients of these large gifts may be trusted to do justice to its citizens who originally paid the money. This can not be relied upon, nor should the Government lose sight of the equality of which it boasts, and having entered upon the plan of reimbursement abandon to other agencies the duty of just distribution, and thus incur the risk of becoming accessory to actual inequality and injustice.

If in defense of the plan proposed it is claimed that exact equality can not be reached in the premises this may be readily conceded. The money raised by this direct tax was collected and expended twenty-seven years ago. Nearly a generation has passed away since that time. Even if distribution should be attempted by the States and Territories, as well as by the Government, the tax-payers in many cases are neither alive nor represented, and in many other cases, if alive, they can not be found. Fraudulent claims would often outrun honest applications, and innumerable and bitter contests would arise between claimants.

Another difficulty in the way of doing perfect justice in the operation of this plan of reimbursement is found in the fact that the money to be appropriated therefor was contributed to the Federal Treasury for entirely different purposes by a generation many of whom were not born when the direct tax was levied and paid, who have no relation to said tax, and can not share in its distribution. While they stand by and see the money they have been obliged to pay into the public Treasury, professedly to meet present necessities, expended to reimburse taxation long ago fairly, legally, and justly collected from others, they can not fail to see the unfairness of the transaction.

The existence of a surplus in the Treasury is no answer to these objections. It is still the people's money, and better use can be found for it than the distribution of it upon the plea of the reimbursement of ancient taxation. A more desirable plan to reduce and prevent the recurrence of a large surplus can easily be adopted—one that, instead of creating injustice and inequality, promotes justice and equality by leaving in the hands of the people and for their use the money not needed by the Government "to pay the debts and provide for the common defense and general welfare of the United States."

The difficulties in the way of making a just reimbursement of this direct tax, instead of excusing the imperfections of the bill under consideration, furnish reasons why the scheme it proposes should not be uttered upon.

I am constrained, upon the considerations herein presented, to withhold my assent from the bill herewith returned, because I believe it to be without constitutional warrant; because I am of the opinion that

there exists no adequate reasons, either in right or equity, for the return of the tax in said bill mentioned, and because I believe its execution would cause actual injustice and unfairness.

GROVER CLEVELAND.

EXECUTIVE MANSION, *March 2, 1889.*

The Senate, after a brief debate, passed the measure over the veto, by the following vote:

YEAS—Allison, Blackburn, Blodgett, Butler, Cameron, Chace, Chandler, Cockrell, Cullom, Daniel, Dawes, Farwell, Faulkner, Frye, George, Gorman, Gray, Hale, Hampton, Harris, Hawley, Hearst, Hisscock, Hoar, Ingalls, Jones of Nevada, Kenna, Morgan, Morrill, Palmer, Payne, Platt, Plumb, Quay, Ransom, Riddleberger, Sabin, Sawyer, Sherman, Spooner, Stewart, Stockbridge, Teller, Walthall, Wilson of Iowa—45.

NAYS—Blair, Call, Coke, Edmunds, Jones of Arkansas, Pasco, Reagan, Saulsbury, Vest—9.

ABSENT—Aldrich, Bate, Beck, Berry, Bowen, Brown, Colquitt, Davis, Dolph, Eustis, Evarts, Gibson, McPherson, Manderson, Mitchell, Paddock, Pugh, Stanford, Turpie, Vance, Voorhees, Wilson of Maryland—22.

In the House a motion to reconsider was objected to.

Interoceanic Canals.—On Feb. 27, 1888, the Senate passed a bill incorporating the Nicaragua Canal Company, which was reported and discussed in the House at the first session and taken up as unfinished business, Dec. 7, 1888. The Senate bill was as follows:

Whereas, to facilitate commercial intercourse by water between the Atlantic and the Pacific States as well as with foreign nations, it is deemed desirable for the public interests of the United States that a ship-canal be constructed between the Atlantic and Pacific Oceans, on what is known as the Nicaragua route: Therefore,

Be it enacted, etc., That Frederick Billings, Charles P. Daly, Daniel Ammen, Francis A. Stout, Horace L. Hotchkiss, Edward F. Beale, Hiram Hitchcock, C. Ridgely Goodwin, A. C. Cheney, J. F. O'Shaughnessy, H. C. Taylor, J. W. Miller, A. S. Crowninshield, A. G. Menocal, Charles H. Stebbins, T. Harrison Garrett, Jules Aldige, R. A. Lancaster, Alfred E. Mills, Gustav E. Kissell, Horace Fairbanks, George H. Robinson, Alfred B. Darling, Joseph E. McDonald, James Roosevelt, Christian Devries, Frederick F. Thompson, Henry A. Parr, and such other persons as may be associated with them and their successors are hereby constituted and created a body corporate and politic in deed and in law, by the name, style, and title of "The Maritime Canal Company of Nicaragua," for the construction, equipment, management, and operation of a ship-canal from the Atlantic to the Pacific Ocean, either entirely through the territory of the republic of Nicaragua or through Nicaragua and in part through the territory of the republic of Costa Rica, with such collateral, connecting, or cross canals as may be necessary to connect therewith, and to exercise such other powers as have been conferred by the Government of Nicaragua by the concession of that republic to the Nicaragua Canal Association, through Mr. A. G. Menocal, its representative, and dated the 23d day of March, A. D. 1887, and finally approved by the legislative and executive authority of the republic on the 20th, 23d, and 24th days of April, A. D. 1887, and such powers as the republic of Costa Rica may confer of the same kind as those named in said concession; and the said Maritime Canal Company of Nicaragua, by that name shall have perpetual succession; may sue and be sued, plead and be unpleaded, defend and be defended, in all the courts of law and equity within the United States; may make and have a common seal; and shall have and possess the rights, powers, and privileges usually possessed by similar companies. It may receive, pur-

chase, hold, and convey such real and personal estate, property and rights of property, or concessionary rights as may be necessary to carry into effect the purposes of this act; may issue stock to the amount of the value thereof in payment therefor, and the stock so issued shall be declared and taken to be full-paid stock, and not liable to any further calls or assessments; may do all lawful things to secure the full enjoyment of the powers, privileges, rights, benefits, and grants contained in any canal concession so made by the republic of Nicaragua or to be made by the republic of Costa Rica; as aforesaid; and to aid in the construction of said canal and to carry out the purposes of this act, the said Maritime Canal Company of Nicaragua is hereby authorized to issue its bonds, and to secure the same by mortgage on its property and rights of property of all kinds and descriptions, real, personal, and mixed, including its franchise to be a corporation. The principal office of said corporation shall be in the city of New York, and all legal process may be served upon the person who may at the time be in charge of said office or upon the attorney of said company, whose name and address shall be certified by the president of the company; and such certificate shall be filed in the office of the Secretary of State of the United States.

SEC. 2. That the capital stock of said company shall consist of not less than one million shares of \$100 each, with the right to increase the capital stock to two million shares of \$100 each, upon the vote of two thirds of the stock of said company at any time outstanding, which shares shall in all respects be deemed personal property and shall be transferable in such manner as the by-laws of said corporation may provide. Five incorporators, who shall be chosen by a majority of the number from those named in this act, shall have power to open books of subscription to the capital stock of said company in the city of New York, and at such other places in the United States, Nicaragua, or elsewhere as they may designate, who shall receive all subscriptions for stock; and no stock shall be transferable except upon the books of the company provided for that purpose. The said incorporators shall give thirty days' notice of the time and place of the opening of said books, by publication in one daily newspaper in New York City, and one newspaper in Managua, Nicaragua, and one in San José, Costa Rica, if the said canal should be in part in the territory of that republic. Sixty days' previous notice shall be given of the payment required, of the time and place of payment by publication in one daily newspaper in the city of New York, and in one newspaper in Managua, Nicaragua, and one in San José, Costa Rica, if the said canal should be in part in the territory of that republic; and in case any stockholder shall neglect or refuse to pay, in pursuance to such notice, the stock held by him may be sold to the highest bidder for cash, according to the regulations to be made therefor in the by-laws of said company. The directors hereinafter provided for may adopt regulations and by-laws not inconsistent with the provisions of this act.

SEC. 3. That the affairs of the said company shall be managed by a board of directors, fifteen in number, who shall hold their office for three years and until their successors are duly chosen and qualified, and a majority of whom shall be citizens and residents of the United States. At the first election five shall be chosen by the stockholders for one year, five for two years, and five for three years, and at each annual election thereafter five shall be chosen by the stockholders for three years. The said board shall elect from its number a president who shall be a citizen and resident of the United States, and one or more vice-presidents of the company, who shall hold office for such terms as the by-laws of said board may provide and until their successors are duly elected and shall have qualified.

SEC. 4. That for the management and disposition of the stock, property, estate, and effects of the said company the board of directors may make such by-laws,

rules, and regulations as may conform to the authority granted in such canal concession or concessions, and not be inconsistent with this act or the laws of the United States or the existing treaty stipulations of the United States with the Government of Nicaragua or of Costa Rica, if the said canal should be in part in the territory of that republic; and may fix the time for election of directors, and in case of vacancy in said board, caused by death, resignation, or otherwise, may fill the same. No person shall be a director who is not a stockholder, and any one ceasing to be a stockholder shall cease to be a director. All meetings of stockholders shall be held at the office of the company in the city of New York, and at least one such meeting shall be held in each year; but failure to elect directors on the day appointed by said by-laws shall not be deemed to dissolve said company, but such election may be holden on any day appointed thereafter by the directors first giving thirty days' notice thereof, in manner aforesaid. The directors, of whom eight, including the president, shall be a quorum, shall have full power touching the election or appointment of all officers of the company, and said officers shall hold office at the will and pleasure of said board.

SEC. 5. Nothing in this act contained shall be deemed or construed to in any wise restrict or impair any right of the United States under any treaty in force with the Republic of Nicaragua. And nothing in this act shall be held or construed to in any manner involve the United States in any pecuniary obligations whatever other than in respect of the payment of tolls, as provided for in this act.

SEC. 6. That Congress shall at all times have the power to alter, amend, or repeal this act, when in its judgment the public good may so require.

In general discussion of the measure, Mr. Cox, of New York, said: "It has two branches: 1, its constitutionality; and, 2, its feasibility.

"1. Can Congress create such a corporation? Under Article I, section 8, of the Constitution, Congress has power to regulate commerce with foreign nations and among the several States. The Supreme Court has interpreted this clause frequently. Chief-Justice Marshall decided the leading case of *Gibbons vs. Ogden* (9 Wheat., first volume). He upheld the power of Congress to provide for 'commercial intercourse between nations and parts of nations in all its branches.' Navigation was embraced, according to that decision, within the words of the Constitution. There was no limitation on the species of commercial intercourse. It could be 'exercised to the utmost extent.' When the sovereignty of Congress is recognized, though limited to specific objects, it is plenary as to these objects. There has been a close adherence to this leading case both in the Federal and State courts. These cases include commerce carried on by corporations as well as by individuals. Mr. Justice Field recognized this (8 Wallace, 182, 183) in the case of *Paul vs. Virginia*. He recognized the utility of corporations in the commercial world. They were contemporaneous with the formation of the Constitution, the grant of power having made no reference to the instrumentality by which this commerce should be carried on. 'It is general, and includes alike commerce by individuals, partnerships, associations, and corporations.'

"Afterward, in the case of the United States *vs. Marigold* (9 Howard, 567) Mr. Justice Daniel said that the Constitution warranted legislative discretion on all and every subject of commerce.

"In other cases, which might be quoted, it was

held that either interstate or foreign commerce was within the purview of our organic law. Even as late as the case of *Lord vs. Steamship Company* (102 U. S. Reports, 544) the court interpreted the constitutional clause as to extra-territorial commerce, and the cases then decided had reference to commerce in a foreign country, including navigation as well as traffic.

"There can be no doubt that if this corporation is a facility for such commercial intercourse and navigation, it is within the constitutional clause.

"It is, therefore, unnecessary to inquire whether this bill is constitutional under the 'general defense' clause of the Constitution. This brings me to the—

"Second proposition: That this proposed charter affects the commerce of the whole world, and including especially our own. The obstacle, if any, would be the lack of acquiescence in the foreign country through which the proposed facility of commerce, or the proposed canal, is to pass. There is no obstacle in this case, as Nicaragua has given her stipulation in that regard.

"How will this matter affect our maritime traffic?

"First, it does what Maury intended should be done by his scientific induction and experiment in making a map of the ocean, showing its varied currents. That is, it leads commerce away from the old routes upon the ocean; it discovers and constructs new and shorter routes. That this is so has already been explained by the committee which has proposed the measure.

"Without considering any other route, or the relations of any other country to this or any other route, I may be allowed to say that if this enterprise be successful, it will enable our country to compete successfully with the other hemisphere, not only with the Pacific coast of our own country, but with the coast of North and South America generally. The vessels of Europe now have ten days of an advantage over us in time and 2,000 miles in distance in reaching the western coast of North and South America. In sailing around Cape Horn we are at a great disadvantage compared with the vessels of the world. This canal will place the city I represent 2,500 miles nearer to San Francisco than Liverpool is. It is of especial advantage to our Southern cities. I need not dilate upon the advantages by which we would be enabled to trade for the eastern coast and nations of Asia through this shorter water route.

"It does not matter, in this connection, whether we shall be exclusive users of the canal or not. The advantages to the company are apparent, and the advantages to our country are paramount. They will not be lessened by making the canal neutral.

"This company asks no money and no monetary credit of the Government. The bill as now pending absolutely forbids any moneyed responsibility. It stands, therefore, very unlike other transit routes, which have been becoming running sores, by reason of the munificence of Congress in granting them lands and credit, and the flagrant breaches of the trusts created by statute."

Mr. Holman, of Indiana, in offering an amendment to the bill, said: "During our past history Congress, legislating on subjects within our own

exclusive jurisdiction, could determine what remedy was proper for frauds committed under color of its enactments, or restrain the attempt to commit fraud, and could determine in such case what justice demanded in behalf of the United States or its citizens with no power to interfere. But, by this bill, if it becomes a law, you invite in express terms capitalists of all nations to become the holders of stocks and bonds issued by a corporation you have created, operating in a foreign country, and beyond your jurisdiction. When \$200,000,000 of stock shall have been issued and bonds without limit held by citizens of Germany, France, England, and the other nations of Europe, and questions shall arise, as they will arise, how far the United States is responsible, they will not, as in all former years, be able to determine the questions as those of internal policy, for the rights of citizens of other nations will be involved in the enterprise we have authorized. Thus the United States, leaving the old path of safety, will become involved in foreign affairs, and lose the impregnable position of neutrality in foreign conflicts which has been the foundation of our safety from the beginning.

"Besides all this, Nicaragua and Costa Rica, through whose territory this canal will pass in its course from the Atlantic to the Pacific, are feeble governments, not controlled by an intelligent people, already mixed up by treaty and otherwise with the European governments; and gentlemen will readily see from the nature of the concessions alleged to have been made to this 'Maritime Canal Company,' and the nature of the rights those governments have retained, that within a few years the United States will have to employ its powers in protecting this corporation in the rights it claims, a corporation, in fact, more foreign than domestic; and yet the United States, having granted these corporate powers, will be compelled to maintain them.

"The probabilities are that the United States will be compelled at an early day to occupy the country with land forces and a naval force on each border. No one can say that this will occur, but it can be readily seen that such will almost certainly be the result, and if it does this republic will become as completely involved in the wretched contests and still more wretched methods of government which have impoverished the many and enriched the few as if it had been a part of the European system. If this Government once leaves its impregnable position of fostering only the well-being of its own people, which resulted in its present greatness, who shall predict, in the light of history, its effect on our free institutions?

"If this enterprise shall be successful under the policy of this bill, these enterprising corporators and others will reap a rich harvest and amass wealth; if disaster shall befall it, such as all enterprises of magnitude and all others are exposed to, these corporators of Europe and America and others connected with them will amass fortunes out of the stocks and bonds you authorize this corporation to issue, for when you enter upon this work in the manner and form proposed by this bill you can not escape the inevitable consequences. The judgment of the nations whose citizens you invite to invest their capital in this enterprise will demand that this Government

shall be held responsible for a great foreign work it has authorized to be constructed by a corporation composed of citizens of all nations, implying support and protection of this Government.

"Besides all this, with the national honor involved, and the great capitalists of this country who have become the holders of the stocks and bonds of this corporation demanding, on the many plausible pretenses that will be suggested, among others, that this Government having induced capitalists of all nations to engage in the enterprise, and that unexpected obstacles had been met, as in the case of the Panama Canal, the Government ought, in common honesty and in respect to national honor, to furnish proper relief, will Congress be able to resist their demands? I answer no; and if this bill becomes a law the early future will confirm my statement.

"And thus, sir, this canal will be, even if this corporation shall fail, completed. Another great brood of ingenious and skillful financiers who live off of the labor of other men will amass kingly fortunes through the employment of Government in the old method, at the expense of the toiling millions. And yet the hundreds of millions of dollars which will be drawn in taxation from the mass of men of our own country will not add one cent to the value of their daily labor or in any possible degree ameliorate the hard fortune to which labor is subjected by these methods which have centralized the wealth of the world and consigned the great multitude of men to poverty. If the capitalists of Europe and America wish to construct this canal let them do so, for it will greatly foster the capital interests of both continents; but I protest against the purpose which this bill aims to accomplish, to cast the ultimate burden on the labor of this country while the benefits and profits will inure to capital of Europe and America.

"It is manifest this bill will become a law. It is easy to disguise such an enterprise and hold out delusive hopes to the laboring men, who constitute the great mass of our people and of the world, but I will attempt, in the best way I can, to prevent this stock-jobbing enterprise from being made a source of fortune to these corporators of Europe and America at the expense of the laboring men of this country, even if the greater evil of this measure can not be averted. I will press the amendment which I have already named:

Provided, however, That nothing in this act contained shall be so construed as to commit the United States to any liability whatever for or on account of said company; nor shall the United States be held in any wise liable or responsible in any form or by any implication for any debt or liability in any form which said company may incur, nor be held as guaranteeing any engagement or contract of said company, or as having assumed, by virtue of this act or otherwise, any responsibility for the acts or proceedings of said company in any foreign country, or contracts or engagements entered into in the United States.

"I freely admit that, in an enterprise of this magnitude, authorized by the United States in a foreign country, involving the commercial enterprises and the great capital interests of the world, the restriction which I have proposed may be almost as feeble as the spider's web; I admit this. The force of this movement, the struggle of the

great interests and great capital that will be involved in this enterprise will, if our former experiences are considered, render such a restriction or declaration of little avail, and yet, hoping for the best, I offer this amendment. It may possibly meet some wily argument that, from the nature of the unlimited powers conferred on this corporation, the United States in the beginning intended to assume, financially and otherwise, responsibility for this foreign enterprise, and guarantee the investments of the skillful financiers and enterprising capitalists of all nations, who are seeking to use the power and resources of the United States for their own aggrandizement.

"If it is adopted, it will at least stand as a protest of this present House of Representatives against the claim that will be made that the United States intended such guarantee. The times that are coming can only determine the strength of such a declaration as to the purpose of the United States in granting such an extraordinary charter, when the corridors of this hall shall be crowded with a powerful lobby demanding that the United States Treasury shall uphold and validate the hundreds of millions of dollars in stocks and bonds which its corporation shall have issued for the enrichment of the financial adventurers of Europe and America. I at least hope that the amendment I have suggested will be adopted."

The amendment proposed by Mr. Holman was agreed to. Mr. Wilson, of Minnesota, proposed the following amendment, which was also agreed to:

SEC. 3. That no certificates of stock shall be issued until at least ten per cent. of the same shall be fully paid for in money at the par value of said stock, and the money deposited in the treasury of said company, and said stock so subscribed shall not be assignable until the whole of the same shall be so paid in, and no payment on account of capital of said company shall be made except in money; and said company is hereby prohibited from returning or rebating any part of the money so paid. No bonds in excess of the amount of capital paid and received shall be authorized or issued until such paid capital shall amount to the sum of five million dollars. No part of the capital stock paid in shall be at any time withdrawn or returned to the stockholders, or in any manner diverted from the proper uses of the corporation. Every person violating or aiding in the violation of the foregoing provision shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by fine not exceeding ten thousand dollars, or by imprisonment not exceeding five years, or by both of such punishments, in the discretion of the court.

In support of the amendment, he said: "I am in favor of this bill, but I desire the amendment which has just been read incorporated. I have no doubt, sir, that a canal across that isthmus will be built within a short time, and I feel equally certain that the United States should permit no foreign country to build or control that canal. I think that is manifest public policy. I have listened with strict attention to the argument of the gentleman from Indiana, and other gentlemen, that we have no power under the Constitution to grant such a charter as this, and I must admit that, while I entertain doubts, I have not been convinced by their arguments. Indeed, no one can satisfactorily discuss that question in the limited time allowed to a speaker under this or-

der. But I incline very strongly to the opinion that the United States has the right to create this corporation, or the right to build the canal; and if I were sure that the United States could build and operate it without any jobbery, I am not ready to say that I would not favor that, so strongly am I impressed with the conviction that it is a work whose importance can hardly be overestimated. But, Mr. Chairman, we all know what has been the effect of the issuance of stock that represents no capital.

"It is an injustice to the whole people to permit any corporation, created to act as a common carrier, to issue one dollar of stock, except as the evidence of and to the amount of the capital actually paid into its treasury. Nothing has worked greater injustice to our people, and especially to the people of the West, than such fraudulent issues of unpaid-for stock. Nothing has so embarrassed the adjustment or regulation of freight charges.

"Certificates of stock ordinarily soon pass out of the hands of the original holders into the hands of *bona-fide* holders for value, who have neither knowledge nor means of knowledge that such certificates are not what they purport to be—certificates of actual stock of the company. The purchaser of such certificates reasonably expects and insists that the tolls or freights charged by the corporation shall be fixed and kept so high as to pay a reasonable rate of interest on all the stock issued. If so, the people are compelled to pay interest on a fictitious capital, on certificates of stock issued without consideration; if not, the *bona-fide* purchaser of such stock, without any fault or negligence on his part, is deprived of any return for his money.

"Wrong and injustice to the whole people, or to the purchaser of such stock, can only be prevented by preventing the issue of stock beyond the amount of money actually paid in. We should learn wisdom from the past."

The following amendments were also adopted:

Add to section 2: "All bonds, stocks, and certificates issued for or as part of the capital of the company shall be issued at the principal office in the city of New York."

And add to the above amendment the following:

"All shares, stocks, bonds, certificates, or other securities of this company shall be disposed of only for cash, to be paid into the company treasury and used for corporate purposes: *Provided*, That this shall not apply to bonds or securities issued under Article L of the concession of Nicaragua to the canal association."

In line 11, section 3, after the word "company," insert "who shall also be citizens and residents of the United States."

Strike out in lines 4 and 5, section 3, "and a majority of whom shall be citizens and residents of the United States," and insert "the directors shall be citizens of the United States or of Nicaragua, and a majority of such directors shall be citizens and residents of the United States."

Add to section 4 the following:

"*Provided*, That no change of concessions heretofore or hereafter granted by the Nicaraguan and Costa Rica Governments for or in behalf of the construction of said canal, which in any manner affects the rights of American citizens to the use of said canal, or which affects the right of the Government of the United States to have a voice in the governmental control of the use of same, shall be made until the consent of the Government of the United States to such change shall have been first given thereto."

Add to section 5:

"And nothing herein shall be construed to estop this Government from asserting at any time any rights or powers that may now exist by virtue of the laws of nations or that may be acquired through treaty stipulations with respect to the rights of transportation of the citizens of the United States or their property over this canal or the country through which the same may be constructed, or to transport troops or munitions of war in time of peace or war."

Add at the end of section 5 the following:

"And nothing in this act shall be held or construed to in any manner involve the United States in any pecuniary obligations whatever, other than in respect of the payment of tolls as provided for in this act."

Add as new section:

"Said company shall make a report on the first Monday of December in each year to the Secretary of the Interior, which shall be duly verified by the President and Secretary thereof, giving such detailed statement of its affairs and of its assets and liabilities as may be required by the Secretary of the Interior, and any false statement so made shall be deemed perjury and punishable as such. And it shall be the duty of the Secretary of the Interior to require such annual statement and to prescribe the form thereof and the particulars to be given thereby."

Add to section 6:

"Provided, That the construction of said ship-canal shall be commenced in good faith within three years."

Add to section 6:

"Congress hereby reserves the right to alter, amend, or repeal this act, and to regulate the toll or tariff rates for the transportation of persons or property by this company or its assigns."

Add, as section 6, the following:

"Sec 6. That at any time hereafter the Government of the United States shall have the right, at its own option, to acquire by purchase the entire property of said company in said canal and its appurtenances at a price equal to the actual cost thereof, with interest on such cost at the rate of 5 per cent. per annum."

Strike out all after the word "act," line 41, page 3, to the word "may," in line 44, and insert:

"All shares, stocks, bonds, certificates, or other securities which the company may issue to raise the corporate capital shall be executed and issued at the principal office in the city of New York; and all such shares, stocks, bonds, certificates, or other securities shall be disposed of only for cash, to be paid into the company treasury and used for corporate purposes: *Provided*, That this shall not apply to bonds or securities issued under Article L (50) of the concession of Nicaragua to the canal association."

The bill as amended passed the House on Jan. 4, 1889. The Senate non-concurred in the House amendments, and a conference committee reported as follows on Feb. 4:

The committee of conference on the disagreeing votes of the two Houses on the amendments of the House to the bill (S. 1,305) to incorporate the Maritime Canal Company of Nicaragua, having met, after full and free conference, have agreed to recommend and do recommend to their respective Houses as follows:

That the Senate recede from its disagreement to the amendment of the House numbered 1, and agree to the same with an amendment as follows: Substitute for the words proposed to be stricken out and the words proposed to be inserted the following: "May issue stock to the amount of the just value of such estate, property, and rights, and for work and labor done or materials provided in the execution of the work of constructing said ship-canal; and the stock issued for these purposes shall be deemed paid-up stock and shall not be liable to any further calls or assessments"; and the House agree to the same.

That the Senate recede from its disagreement to the amendment of the House numbered 2, and agree to the same with amendments as follows:

In line 2, after the word "any," insert the word "pecuniary."

In line 7, strike out the words "or otherwise."

In lines 9, 10, and 11 strike out all after the words "United States."

And the House agree to the same.

That the Senate recede from its disagreement to the amendment of the House numbered 3, and agree to the same with an amendment as follows: Strike out all words proposed to be inserted, and insert in lieu thereof the following:

"All shares, stocks, bonds, certificates, or other securities which the company may issue to raise the corporate capital shall be executed and issued at the principal office in the city of New York."

And the House agree to the same.

That the Senate recede from its disagreement to the amendment of the House numbered 4, and agree to the same with an amendment as follows: Strike out all the words proposed to be inserted, and insert in lieu thereof:

Sec. 3. That no certificates for stock, except as otherwise provided in this act, shall be issued till at least 10 per cent. of the par value thereof shall be fully paid for in money, and such money deposited in the treasury of said company; and there shall be at least \$1,000,000 in money paid on such subscriptions into the treasury of said company within one year from the passage of this act; and said company is hereby prohibited from returning or repaying any part of the money so paid. No part of the capital stock paid in shall be at any time withdrawn or returned to the stockholders, or in any manner diverted from the proper uses of the corporation. Any violation of the provisions of this section shall subject the charter to forfeiture."

And the House agree to the same.

That the Senate recede from its disagreement to the amendment of the House numbered 5.

That the Senate recede from its disagreement to the amendment of the House numbered 6, and agree to the same with an amendment as follows: Substituting for the words proposed to be stricken out and the words proposed to be inserted the following:

"And the majority of whom shall be citizens and residents of the United States."

And the House agree to the same.

That the Senate recede from its disagreement to the amendments of the House numbered 7 and 8.

That the Senate recede from its disagreement to the amendment of the House numbered 9, and agree to the same with amendments as follows: Line 3, after the word "verified," insert the words "on oath"; line 5, after the word "any" insert the word "willfully"; and the House agree to the same.

That the Senate recede from its disagreement to the amendments of the House numbered 10, 11, 12, and 13.

That the Senate recede from its disagreement to the amendment of the House numbered 14, and agree to the same with an amendment as follows: Strike out all the words proposed to be inserted, and insert in lieu thereof the following:

"This act shall expire and be of no force or effect at the end of three years unless the construction of said canal shall be commenced and prosecuted in good faith within that time."

And the House agree to the same.

The report was vigorously discussed in the House, but finally adopted, Feb. 6, by a vote of 178 yeas to 60 nays. The President approved the measure Feb. 20.

On Dec. 19, 1888, Mr. Edmunds, of Vermont, introduced in the Senate the following joint resolution which was referred to the Committee on Foreign Relations:

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the Government of the United States will look with serious concern and disapproval upon any connection of any European Government with the construction or control of any ship-canal across the Isthmus of Darien or across Central America, and must regard any such connection or control as injurious to the just rights and interest of the United States and as a menace to their welfare.

Resolved, That the President be, and he is hereby, requested to communicate this expression of the views of Congress to the governments of the countries of Europe.

The resolution was reported back without amendment Jan. 4, 1889, and was discussed in open session on the following day. Mr. Sherman, of Ohio, said: "This joint resolution is a statement of a line of public policy adopted by the United States nearly seventy years ago. It has been announced in a more or less formal manner by almost every President of the United States since that time in the annual messages to Congress. It has always been sanctioned in various ways by Congress. It is the simplest declaration of public policy, that the Government will not view with satisfaction the establishment by any foreign government of the control over the construction of any canal across the Isthmus of Panama or in Central America.

"The declaration is in a very moderate and simple form. I think the joint resolution ought to be agreed to unanimously by every member of both Houses of Congress, and I have no doubt it will receive the approbation of the President of the United States.

"To discuss the subject at length would be very interesting, but we should have to go into a long and elaborate history, and I have not deemed it necessary to do so on this occasion.

"I will state the occasion that gave rise to the introduction of the joint resolution.

"Undoubtedly the Panama Canal scheme is laboring under very great embarrassments. It has recently, in a measure, failed or suspended, and the authorities of France have provided for its suspension. A great many French people as well as Americans and Englishmen and people of other countries are interested in the building of the Panama Canal under a local charter. The Government of France has hitherto always disclaimed any connection with the enterprise as a government, but it has been conducted by the private management of De Lesseps and others under a Central American company. However, recently, on account of the failure of De Lesseps and the necessity of large sums of money being raised, it has been proposed by a friendly power, the Government of France, that it should itself assume the construction of this canal or undertake some control or ownership or jurisdiction over it, or exercise some power which is inconsistent with the established doctrine of the American Government.

"We thought that under those circumstances it was but an act of friendly caution to express the opinion so often expressed in this country that the Government of the United States would not look with satisfaction upon the exercise of any such power.

"It was thought by the Committee on Foreign Relations, this public fact being known as a

matter of history, that we should at least say that we can not allow the French Government to proceed to assume an act of authority or power over this canal as a government; and we announce our well-known decision upon the subject. That was the occasion. If there ever was an occasion demanding the exercise of the announcement of this doctrine it is now."

Mr. Edmunds said: "The joint resolution was induced in its introduction by the circumstance that I thought the honor and candor of the United States required us in a formal and friendly way to restate the American doctrine upon this subject before our friends and neighbors, the Republic of France, had been drawn into an official support of the De Lesseps scheme at Panama, so that they could not say to us afterward, 'You sat silent and acquiesced in our engaging in this enterprise, and you ought not now to complain'; and that the honorable thing to do as between friendly nations was for us to say now in a friendly and temperate way how we should regard the intervention, not only of France, but of any European power in the matters to which the resolution alludes."

Mr. Call, of Florida, opposed the resolution. He said: "I hope the joint resolution will not be adopted. If there is any reason which can be vindicated upon argument and proper consideration for prohibiting any great work of beneficence to mankind, I can not see how it can be brought to bear upon this question.

"The construction of a canal across the Isthmus of Panama is a work that will promote the welfare of every human being in the world. That this Government should interpose obstacles upon the plea that it may promote the extension of monarchical institutions or the systems of government that prevail in Europe does not address itself to my mind with any kind of reasonableness.

"The Monroe doctrine was predicated entirely upon the assumption that the system of European governments might be promoted by their colonization upon this hemisphere. This country is now strong enough to defy without fear of results any efforts of that kind; and it can control the matter in its diplomatic relations without preventing or obstructing the construction of this great work necessary to the commerce of the world, necessary to the cheapening of the articles of necessity, of human consumption, to every human being in this country and in every other country.

"Why should not the Panama Canal be built? Does it interfere with the power of this country? Does it in any way interfere with any of its public policies? Does it increase the power of the French or any other government to restrict the extension of republican institutions or the colonization of this country by people of republican sympathy and friendly to our form of government? Its influence in that respect amounts to nothing.

"In my judgment, for us to interpose any obstacle, to say that any European nation shall not contribute as a government to the construction of a great public work, is going back to the barbarous ages.

"Sir, for one, I am free to say that I shall regard with pleasure any effort on the part of the

French Government or any other associated power to build this great work, which can only promote the welfare of every family and every human being, and increase the number of their comforts and cheapen the productions which are necessary for them.

"Mr. President, I hope that we shall not be bound by the prejudices and fears which originated years ago, when this country was weak, now when we can defy the world, that we should be restricted within narrow limits by European colonization upon the Western Hemisphere. Sir, if France should establish a monarchical government in Panama or Central America and this country should see fit to declare that it should not be done, it would disappear in a moment. But what connection has the construction of this great work with the establishment of monarchical systems or institutions on this hemisphere?"

"It is not difficult to see that it has none whatever. The question of the construction of a waterway over the Isthmus of Panama for the commerce of the world and the question of monarchy or republic, of aristocratic or democratic institutions, have no connection with each other. It is even difficult to see how any one can even make a pretense to that effect."

On Jan. 7, the subject was discussed in secret session for more than five hours, and several propositions to amend were voted down. The resolution was then passed by the following vote:

YEAS—Aldrich, Allison, Bate, Berry, Brown, Chandler, Cockrell, Coke, Colquitt, Cullom, Davis, Dawes, Dolph, Edmunds, Eustis, Evarts, Farwell, Faulkner, Frye, George, Gibson, Gorman, Hale, Hawley, Hoar, Ingalls, Jones of Arkansas, Manderson, Mitchell, Morgan, Morrill, Paddock, Palmer, Payne, Platt, Plumb, Pugh, Quay, Ransom, Saulsbury, Sawyer, Sherman, Spooner, Stewart, Teller, Vest, Walthall, Wilson of Iowa, Wilson of Maryland—49.

NAYS—Blackburn, Hampton, Vance—3.

ABSENT—Beck, Blair, Blodgett, Bowen, Butler, Call, Cameron, Chace, Daniel, Gray, Harris, Hearst, Hiscock, Jones of Nevada, Kenna, McPherson, Pasco, Reagan, Riddleberger, Sabin, Stanford, Stockbridge, Turpie, Voorhees—24.

The resolution in the House was submitted to the Committee on Foreign Relations, which reported it favorably and asked that it be recommitment, with leave to report at any time. This action was taken and the committee reported again March 2; but nothing further was done.

Counting the Electoral Votes.—The Senate, on Jan. 23, 1889, and the House, on Jan. 28, passed the following concurrent resolution in regard to the counting of the electoral votes.

Resolved by the Senate (the House of Representatives concurring), That the two Houses of Congress shall assemble in the Hall of the House of Representatives, on Wednesday, the 13th day of February, 1889, at 1 o'clock in the afternoon, pursuant to the requirement of the Constitution and laws relating to the election of President and Vice-President of the United States; and the President of the Senate shall be the presiding officer; that two persons be appointed tellers on the part of the Senate, and two on the part of the House of Representatives, to make a list of the votes as they shall be declared; that the result shall be delivered to the President of the Senate, who shall announce the state of the vote and the persons elected to the two Houses assembled, as aforesaid, which shall be deemed a declaration of the persons elected President and Vice-President of the United States; and, to-

gether with a list of the votes, be entered on the journals of the two Houses.

At the time appointed the two Houses assembled in the Hall of the House of Representatives and Mr. Ingalls, of Kansas, took the chair as President *pro tem.* of the Senate. Mr. Manderson, of Nebraska, and Mr. Harris, of Tennessee, were the tellers appointed for the Senate, and Mr. Ermentrout, of Pennsylvania, and Mr. Baker, of New York, were the tellers appointed for the House. The counting of the vote proceeded rapidly; and there were no objections, and no discussion arose during the process. The following is the result as certified by the tellers:

LIST OF VOTES FOR PRESIDENT AND VICE-PRESIDENT OF THE UNITED STATES FOR THE CONSTITUTIONAL TERM TO COMMENCE ON THE 4TH DAY OF MARCH, 1889.

Electoral votes to which each State is entitled.	STATES.	FOR PRESIDENT.		FOR VICE-PRESIDENT.	
		Benjamin Harrison, of Indiana.	Grover Cleveland, of New York.	Levi P. Morton, of New York.	Allen G. Thurman, of Ohio.
10	Alabama		10		10
7	Arkansas		7		7
8	California	8		8	
3	Colorado	3		3	
6	Connecticut		6		6
3	Delaware		3		3
4	Florida		4		4
12	Georgia		12		12
22	Illinois	22		22	
15	Indiana	15		15	
13	Iowa	13		13	
9	Kansas	9		9	
13	Kentucky		13		13
8	Louisiana		8		8
6	Maine	6		6	
8	Maryland		8		8
14	Massachusetts	14		14	
13	Michigan	13		13	
7	Minnesota	7		7	
9	Mississippi		9		9
16	Missouri		16		16
5	Nebraska	5		5	
3	Nevada	3		3	
4	New Hampshire	4		4	
9	New Jersey		9		9
36	New York	36		36	
11	North Carolina		11		11
23	Ohio	23		23	
3	Oregon	3		3	
30	Pennsylvania	30		30	
4	Rhode Island	4		4	
9	South Carolina		9		9
12	Tennessee		12		12
13	Texas		13		13
4	Vermont	4		4	
12	Virginia		12		12
6	West Virginia		6		6
11	Wisconsin	11		11	
401	Total	233	168	233	163

At 2.20 o'clock the count was completed and the Senate retired.

Alaskan Fisheries.—On Feb. 25, 1889, Mr. Stockbridge, of Michigan, introduced in the Senate a bill to amend section 1963 of the Revised Statutes, and to provide for the better protection of the fur-seals and salmon fisheries of Alaska. It was referred to the Committee on Fisheries, and reported back, Feb. 27, so amended as to apply only to the salmon fisheries; and the title was changed so as to read: "A bill to provide for the protection of the salmon fisheries of Alaska." The measure passed the Senate without a division, in the following form:

That the erection of dams, barrieades, or other obstructions in any of the rivers of Alaska, with the purpose or result of preventing or impeding the ascent of salmon or other anadromous creatures to their spawning-grounds, is hereby declared to be unlawful; and the Secretary of the Treasury is hereby authorized and directed to establish such regulations and surveillance as may be necessary to insure that this prohibition is strictly enforced and to otherwise protect the salmon fisheries of Alaska; and every person who shall be found guilty of a violation of the provisions of this section shall be fined not less than \$250 for each day of the continuance of such obstruction.

SEC. 2. That the Commissioner of Fish and Fisheries is hereby empowered and directed to institute an investigation into the habits, abundance, and distribution of the salmon of Alaska, as well as the present conditions and methods of the fisheries, with a view of recommending to Congress such additional legislation as may be necessary to prevent the impairment or exhaustion of these valuable fisheries, and placing them under regular and permanent conditions of production.

On Feb. 28, when the measure was laid before the House, Mr. Dunn, of Arkansas, offered the following amendment:

SEC. 3. That section 1956 of the Revised Statutes of the United States was intended to include and apply, and is hereby declared to include and apply, to all the waters of Behring Sea in Alaska embraced within the boundary lines mentioned and described in the treaty with Russia, dated March 30, A. D. 1867, by which the Territory of Alaska was ceded to the United States; and it shall be the duty of the President, at a timely season in each year, to issue his proclamation, and cause the same to be published for one month in at least one newspaper published at each United States port of entry on the Pacific coast, warning all persons against entering said Territory and waters for the purpose of violating the provisions of said section; and he shall also cause one or more vessels of the United States to diligently cruise said waters and arrest all persons and seize all vessels found to be, or to have been, engaged in any violation of the laws of the United States therein.

In explanation of the amendment, he said: "There has been a relaxation of the enforcement of the law heretofore so that unauthorized persons have concluded that the Government does not intend to enforce the law, and not less than one hundred and fifty vessels are to-day fitting out to go to Behring Sea. They will literally cover that sea with unlawful seal-hunters armed with guns, and the destruction of seal-life that will take place and the fusillade of firearms that will occur in that sea during four months of next summer will drive every seal from it that is not killed in the general and indiscriminate slaughter. It does not change the law, but commands the President of the United States to enforce it. The time has come when the Government must enforce the laws for the preservation of our herd of seals with firmness and decision, or suffer an absolute destruction of the herd. The danger is imminent, and I hope no gentleman will object to it. It does not involve a dollar of expenditure. It is useless to protect the seals on the rookeries—the islands of St. Paul and St. George—and leave them to their fate in the waters of Behring Sea. If they are left without protection in the sea there will soon be none left to go to the rookeries."

The house adopted this amendment and passed the measure without a division. In the Senate the bill as amended was referred to the Commit-

tee on Foreign Relations, and that committee on March 1 reported it back with a recommendation that the House amendment be disagreed to. Mr. Morgan, of Alabama, said in explanation: "I wish to say just this: That in the report made by the committee the rights of the Government of the United States were not considered and not intended to be considered. We only arrive at the conclusion that the question presented in the amendment of the House is of such a serious and important a character that the Committee on Foreign Relations would not undertake at this time to pronounce that kind of judgment upon it which is due to the magnitude of such a question.

"I desire that the bill as it passed the Senate originally should pass, because it protects the salmon and other fisheries in Alaska, about which there is no dispute; but this particular question is one of very great gravity and seriousness, and the Committee on Foreign Relations, or at least a majority of the entire committee, did not feel warranted in undertaking to consider it at this time."

Mr. Sherman, of Ohio, added: "I intended, when the amendment was properly before us, to say to the Senate that the Committee on Foreign Relations were of the opinion that while there was no objection at all to the Senate bill as it passed, it being for a clear and plain purpose, the question proposed by the House in the form of an amendment was a grave one and had no relation to the subject-matter of the bill, and ought not to be connected with it, had no connection really with it, and involved serious matters of international law, perhaps, and of public policy, and therefore it ought to be considered by itself.

"I was directed by the committee to state that the subject-matter, the merits of the proposition proposed by the House, were not before us and not considered by us, and we are not at all committed for or against the proposition made by the House. We make this report simply because it has no connection with the bill itself, and it ought to be disagreed to and abandoned and considered more carefully hereafter. I therefore ask for a committee of conference on the disagreeing votes of the two Houses."

The Senate non-concurred in the House amendment, and a conference committee was appointed. On March 2 the conference committee reported as follows:

The committee of conference on the disagreeing votes of the two Houses on the amendments of the Senate to the bill to provide for the protection of the salmon fisheries of Alaska, having met, after full and free conference have agreed to recommend to their respective Houses and do recommend:

That the Senate recede from its disagreement to the amendment of the House, and agree to the same with an amendment to read as follows:

"SEC. 3. That section 1956 of the Revised Statutes of the United States is hereby declared to include and apply to all the dominions of the United States in the waters of Behring Sea, and it shall be the duty of the President at a timely season in each year to issue his proclamation, and cause the same to be published for one month at least in one newspaper (if any such there be) published at each United States port of entry on the Pacific coast, warning all persons against entering such waters for the purpose of violating the provisions of said section, and he shall also cause one

one or more vessels of the United States to diligently cruise said waters and arrest all persons and seize all vessels found to be or to have been engaged in any violation of the laws of the United States therein."

And the House agree to the same.

The House conferees, in submitting the report, made this explanation of the change in the House amendment to the original bill: "The effect of the amendment is to leave out of the House amendment the words that are descriptive of the boundaries of the waters of Alaska." In other words, it makes no claim to jurisdiction over the waters of Behring Sea as *mare clausum*. The conference report was adopted by both Houses, and the bill was approved by the President on the same day.

The Eleventh Census.—At the first session of the Congress, on July 11, 1888, the House passed a bill to provide for taking the eleventh and subsequent censuses. It was as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That a census of the population, wealth, and industry of the United States shall be taken as of the date of June 1, 1890.

SEC. 2. That there shall be established in the Department of the Interior an office to be denominated the Census Office, the chief officer of which shall be called the Superintendent of Census, whose duty it shall be, under the direction of the head of the department, to superintend and direct the taking of the Eleventh Census of the United States, in accordance with the laws relating thereto, and to perform such other duties as may be required of him by law.

SEC. 3. The Superintendent of Census shall be appointed by the President, by and with the advice and consent of the Senate; and he shall receive an annual salary of \$6,000; and for the purposes of taking the Eleventh Census of the United States, the Secretary of the Interior may appoint a chief clerk of the Census Office at an annual salary of \$2,500, two stenographers, ten chiefs of division, and one disbursing clerk, at an annual salary each of \$2,000, ten clerks of class 4, twenty clerks of class 3, thirty clerks of class 2, with such number of clerks of class 1, and of clerks, copyists, and computers, at salaries of not less than \$720 nor more than \$1,000 per annum, as may be found necessary for the proper and prompt compilation of the results of the enumeration of the census herein provided to be taken. And the Secretary of the Interior may also appoint one captain of the watch at a salary of \$840 per annum, two messengers and such number of watchmen and assistant messengers and messenger boys at salaries of \$400 each per annum, laborers and skilled laborers at \$600 each per annum, and charwomen at salaries of \$240 each per annum, as may be found necessary to carry out the provisions of this act. And upon such compilation and publication of said census the period of service of said clerks shall end. All the clerks and employes of classes 4, 3, and 2, above provided for, may be statistical experts. The disbursing clerk herein provided for shall, before entering upon his duties, give bond to the Treasurer of the United States in the sum of \$50,000, which bond shall be conditioned that the said officer shall render a true and faithful account to the Treasurer, quarter-yearly, of all moneys and properties which shall be by him received by virtue of his office, with sureties to be approved by the Solicitor of the Treasury. Such bond shall be filed in the office of the first comptroller of the Treasury, to be by him put in suit upon any breach of the condition thereof.

SEC. 4. That the Secretary of the Interior shall, on or before the first day of March, 1890, on the recommendation of the Superintendent of Census, designate the number, whether one or more, of supervisors of census to be appointed, in each State and Territory and the District of Columbia, who shall be appointed

by the President of the United States, by and with the advice and consent of the Senate. The total number of such supervisors shall not exceed one hundred and seventy-five. Each supervisor shall, before entering upon the duties of his office, take and subscribe the following oath or affirmation: "I, _____, supervisor, do solemnly swear [or affirm] that I will support the Constitution of the United States, and perform and discharge the duties of the supervisor of census, according to law, honestly and correctly, to the best of my ability"; which oath shall be filed in the office of Secretary of the Interior.

SEC. 5. Each supervisor of census shall be charged with the performance, within his own district, of the following duties: To propose to the Superintendent of Census the division of his district into subdivisions most convenient for the purpose of enumeration; to designate to the Superintendent of Census suitable persons, and, with the consent of said Superintendent, to employ such persons as enumerators within his district, one for each subdivision, and resident therein, who shall be selected solely with reference to fitness, and without reference to their political party affiliations, according to the division approved by the Superintendent of Census. *Provided,* That in the appointment of enumerators preference shall in all cases be given to properly qualified persons honorably discharged from the military or naval service of the United States residing in the respective districts. But in case it shall occur in any enumeration district that no person qualified to perform and willing to undertake the duties of enumerator resides in that district, the supervisor may appoint any fit person, resident in the county, to be the enumerator of that district; to transmit to enumerators the printed forms and schedules issued from the Census Office, in quantities suited to the requirements of each subdivision; to communicate to enumerators the necessary instructions and directions relating to their duties, and to the methods of conducting the census, and to advise with and counsel enumerators in person and by letter, as freely and fully as may be required to secure the purposes of this act; and under the direction of the Superintendent of Census, and to facilitate the taking of the census with as little delay as possible, he may cause to be distributed by the enumerators, prior to the taking of the enumeration, schedules to be filled up by householders and others; to provide for the early and safe transmission to his office of the returns of enumerators, embracing all the schedules filled by them in the course of enumeration, and for the due receipt and custody of such returns pending their transmission to the Census Office; to examine and scrutinize the returns of enumerators, in order to ascertain whether the work has been performed in all respects in compliance with the provisions of law, and whether any town or village or integral portion of the district has been omitted from enumeration; to forward to the Superintendent of Census the completed returns of his district in such time and manner as shall be prescribed by the said Superintendent, and in the event of discrepancies or deficiencies appearing in the returns from his district, to use all diligence in causing the same to be corrected or supplied; to make up and forward to the Superintendent of Census the accounts required for ascertaining the amount of compensation due under the provisions of this act to each enumerator of his district.

SEC. 6. Each supervisor of census shall, upon the completion of his duties to the satisfaction of the Secretary of the Interior, receive the sum of \$125, and in addition thereto, in thickly settled districts, \$1 for each thousand or majority fraction of a thousand of the population enumerated in his district, and in sparsely settled districts \$1.40 for each thousand or majority fraction of a thousand of the population enumerated in such district; such sums to be in full compensation for all services rendered and expenses incurred by him, except that an allowance for clerk-hire may be made, at the discretion of the Superintendent of Census. The designation of the compen-

sation per thousand, as provided in this section, shall be made by the Secretary of the Interior at least one month in advance of the date for the commencement of enumeration.

SEC. 7. That all mail matter of whatever class, relative to the census and addressed to the Census Office, to the Superintendent of Census, his chief clerk, supervisors or enumerators, and indorsed "Official Business Department of the Interior, Census Office," shall be transported free of postage; and if any person shall make use of any such indorsement to avoid the payment of postage on his private letter, package, or other matter in the mail, the person so offending shall be deemed guilty of a misdemeanor, and subject to a fine of \$300, to be prosecuted in any court of competent jurisdiction.

SEC. 8. No enumerator shall be deemed qualified to enter upon his duties until he has received from the supervisor of census of the district to which he belongs a commission, under his hand, authorizing him to perform the duties of an enumerator, and setting forth the boundaries of the subdivision within which such duties are to be performed by him. He shall, moreover, take and subscribe the following oath or affirmation:

"I, ———, an enumerator for taking the ——— census of the United States, do solemnly swear (or affirm) that I will make a true and exact enumeration of all the inhabitants within the subdivision assigned to me, and will also faithfully collect all other statistics therein, as provided for in the act for taking the ——— census, and in conformity with all lawful instructions which I may receive, and will make due and correct returns thereof as required by said act, and will not disclose any information contained in the schedules, lists, or statements obtained by me to any person or persons, except to my superior officers.
(signed) ———."

Which said oath or affirmation may be administered by any judge of a court of record, or any justice of the peace, or notary public empowered to administer oaths; and which oath, duly authenticated, shall be forwarded to the supervisor of census before the date fixed herein for the commencement of the enumeration.

SEC. 9. It shall be the duty of each enumerator, after being qualified in the manner aforesaid, to visit personally each dwelling-house in his subdivision, and each family therein, and each individual living out of a family in any place of abode, and by inquiry made of the head of such family, or of the member thereof deemed most credible and worthy of trust, or of such individual living out of a family, to obtain each and every item of information and all the particulars required by this act, as of date June 1, 1890. And in case no person shall be found at the usual place of abode of such family or individual living out of a family competent to answer the inquiries made in compliance with the requirements of this act, then it shall be lawful for the enumerator to obtain the required information, as nearly as may be practicable, from the family or families, or person or persons, living nearest to such place of abode. The Superintendent of Census may employ special agents or other means to make an enumeration of all Indians living within the jurisdiction of the United States, with such information as to their condition as may be obtainable, classifying them as to Indians taxed and Indians not taxed.

SEC. 10. And it shall be further the duty of each enumerator to forward the original schedules, duly certified, to the supervisor of census of his district, as his returns under the provisions of this act.

SEC. 11. The compensation of enumerators shall be ascertained and fixed as follows: In subdivisions where the Superintendent of Census shall deem such allowance sufficient an allowance not exceeding 2 cents for each living inhabitant, 2 cents for each death reported, 15 cents for each farm, and 20 cents for each establishment of productive industry enumerated and returned, may be given in full compensation for all services:

Provided, That the subdivisions to which the above rate of compensation shall apply must be designated by the Superintendent of Census at least one month in advance of the enumeration. For all other subdivisions rates of compensation shall be fixed in advance of the enumeration by the Superintendent of Census, with the approval of the Secretary of the Interior, according to the difficulty of enumeration, having reference to the nature of the region to be canvassed and the density or sparseness of settlement, or other considerations pertinent thereto; but the compensation allowed to any enumerator in any such district shall not be less than \$3 nor more than \$6 per day of ten hours' actual field-work each, when a per diem compensation shall be established by the Secretary of the Interior, nor more than 3 cents for each living inhabitant, 20 cents for each farm, and 30 cents for each establishment of productive industry enumerated and returned, when a per capita compensation shall be deemed advisable by the Secretary of the Interior. No claim for mileage or traveling expenses shall be allowed any enumerator in either class of subdivisions, except in extreme cases, and then only when authority has been previously granted by the Superintendent of Census. The Superintendent of Census shall prescribe uniform methods and suitable forms for keeping accounts of the number of people enumerated or of time occupied in field-work, for the purpose of ascertaining the amounts due to enumerators, severally, under the provisions of this act.

SEC. 12. That the subdivision assigned to any enumerator shall not exceed 4,000 inhabitants, as near as may be. The boundaries of all divisions shall be clearly described by civil divisions, rivers, roads, public surveys, or other easily distinguished lines.

SEC. 13. That any supervisor or enumerator, who, having taken and subscribed the oath required by this act, shall, without justifiable cause, neglect or refuse to perform the duties enjoined on him by this act, or shall, without the authority of the Superintendent, communicate to any person not authorized to receive the same, any information gained by him in the performance of his duties, shall be deemed guilty of a misdemeanor, and upon conviction shall be fined in a sum not exceeding \$500; or, if he shall willfully and knowingly swear or affirm falsely, he shall be deemed guilty of perjury, and, on conviction thereof, shall be imprisoned not exceeding three years, or fined in a sum not exceeding \$800; or if he shall willfully and knowingly make false certificates or fictitious returns, he shall be deemed guilty of a misdemeanor, and upon conviction of either of the last-named offenses, he shall be fined in a sum not exceeding \$5,000 and be imprisoned not exceeding two years.

SEC. 14. That if any person shall receive or secure to himself any fee, reward, or compensation as a consideration for the employment of any person as enumerator or clerk, or shall in any way receive or secure to himself any part of the compensation provided in this act for the services of any enumerator or clerk, he shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined not more than \$3,000, in the discretion of the court, or be imprisoned not more than one year, or both.

SEC. 15. That each and every person more than twenty years of age, belonging to any family residing in any enumeration district, and in case of the absence of the heads and other members of any such family, then an agent of such family, shall be, and each of them hereby is, required, if thereto requested by the superintendent, supervisor, or enumerator, to render a true account, to the best of his or her knowledge, of every person belonging to such family, in the various particulars required by law, and whoever shall willfully fail or refuse shall be guilty of a misdemeanor, and upon conviction thereof shall forfeit and pay a sum not exceeding \$100. And every president, treasurer, secretary, general agent, managing director, or other general officer of every corporation from which answers to any of the schedules provided for by this act are herein required, who shall, if thereto request-

ed by the Superintendent, supervisor, or enumerator, willfully neglect or refuse to give true and complete answers to any inquiries authorized by this act or willfully give false information, such officer or agent shall be guilty of a misdemeanor, and on conviction thereof shall be fined in any sum not exceeding \$10,000, to which may be added imprisonment for a period not exceeding one year.

Sec. 16. That all fines and penalties imposed by this act may be enforced by indictment or information in any court of competent jurisdiction where such offenses shall have been committed.

Sec. 17. That the schedules of inquiries at the Eleventh Census shall be the same as those contained in section No. 2206 of the Revised Statutes of the United States, of 1878, as amended by section 17 of the act entitled "An act to provide for taking the tenth and subsequent censuses," approved March 3, 1879, with such changes of the subject-matter, emendations, and modifications as may be approved by the Secretary of the Interior; it being the intent of this section to give to said Secretary full discretion over the schedules of such inquiries: "*Provided, however,* That said Superintendent shall, under the authority of the Secretary of the Interior, cause to be taken in the same schedule of inquiry, according to such form as he may prescribe, the names of those who had served in the army, navy, or marine corps of the United States in the war of the rebellion, and who are survivors at the time of said inquiry, and the widows of soldiers, sailors, and marines. The report which the Superintendent of Census (if directed by said Secretary) is required to obtain from railroad corporations, incorporated express companies, telegraph companies, and insurance companies, and from all corporations or establishments reporting products other than agricultural products, shall be of and for the fiscal year of such corporations or establishments having its termination nearest to the 1st of June, 1890; the Superintendent of Census shall collect and publish the statistics of the population, industries, and resources of the district of Alaska, with such fullness as he may deem expedient, and as he shall find practicable under the appropriations made, or to be made, for the expenses of the Eleventh Census. The only volumes that shall be prepared and published in connection with said census shall relate to population and social statistics relating thereto, the products of manufactories, mining and agriculture, mortality and vital statistics, valuation and public indebtedness, and to statistics relating to railroad corporations, incorporated express, telegraph, and insurance companies, and a list of surviving soldiers, sailors, and marines, and the widows of soldiers, sailors, and marines.

Sec. 18. That each enumerator in his subdivision shall be charged with the collection of the facts and statistics required by each and all the several schedules, with the following exceptions, to wit: In cities or States where an official registration of deaths is maintained, the Superintendent of Census may, in his discretion, withhold the mortality schedule from the several enumerators within such cities or States, and may obtain the statistics required by this act through official records, paying therefor such sum as may be found necessary, not exceeding the amount which is by this act authorized to be paid to enumerators for a similar service, namely, two cents for each death thus returned. Whenever he shall deem it expedient, the Superintendent of Census may withhold the schedules for manufacturing and social statistics from the enumerators of the several subdivisions, and may charge the collection of these statistics upon experts and special agents, to be employed without respect to locality. And said Superintendent may employ experts and special agents to investigate in their economic relations the manufacturing, fishing, mining, cattle, and other industries of the country, and the statistics of telegraph, express, transportation, and insurance companies as he may designate and require. And the Superintendent of Census shall, with the approval of the Secretary of the Interior, prepare sched-

ules containing such interrogatories as shall, in his judgment, be best adapted to elicit this information, with such specifications, divisions, and particulars under each head as he shall deem necessary to that end. Such experts and special agents shall take the same oath as the enumerators of the several subdivisions, and shall have equal authority with such enumerators in respect to the subjects committed to them, and they shall receive compensation at rates to be fixed by the Superintendent of Census with the approval of the Secretary of the Interior: *Provided,* That the same shall in no case exceed six dollars per day and actual traveling expenses.

Sec. 19. That the enumeration required by this act shall commence on the first Monday of June, 1890, and be taken as of that date, and each enumerator shall prosecute the canvass of his subdivision from that date forward on each week-day without intermission, except for sickness or other urgent cause; and any unnecessary cessation of his work shall be sufficient ground for his removal and the appointment of another person in his place; and any person so appointed shall take the oath required of enumerators, and shall receive compensation at the same rates. And it shall be the duty of each enumerator to complete the enumeration of his district, and to prepare the returns hereinbefore required to be made, and to forward the same to the supervisor of his district on or before the 1st day of July, 1890, and in any city having over 10,000 inhabitants under the census of 1880, the enumeration of population shall be taken within two weeks from the first Monday of June; and any delay beyond the dates above respectively, on the part of any enumerator, shall be sufficient cause for withholding the compensation to which he would be entitled by compliance with the provisions of this act, until proof satisfactory to the Superintendent of Census shall be furnished that such delay was by reason of causes beyond the control of such enumerator.

Sec. 20. That the sum of \$6,000,000 is hereby fixed and limited as the maximum cost of the census herein provided for, exclusive of printing, engraving, and binding; and it shall not be lawful for the Secretary of the Interior or the Superintendent of Census to incur any expense or obligation whatever, in respect to said census, in excess of that sum; and the sum of \$1,000,000 is hereby appropriated, out of any money in the Treasury not otherwise appropriated to be immediately available, and continue available until the completion of the Eleventh Census.

Sec. 21. That the Secretary of the Interior is hereby authorized whenever he may think proper, to call upon any other department or office of the Government for information pertinent to the enumeration herein required.

Sec. 22. That the Superintendent of Census, with the consent of the President, may at any time remove any supervisor of census, and fill any vacancy thereby caused or otherwise occurring; and the supervisor of the census may, with the consent of the Superintendent of Census, remove any enumerator in his district, and fill the vacancy thereby caused or otherwise occurring; and in such cases but one compensation shall be allowed for the entire service, to be apportioned among the persons performing the same in the discretion of the Superintendent of Census.

Sec. 23. That upon the request of any municipal government, meaning thereby the incorporated government of any town, village, township, or city, or kindred municipality, the Superintendent of Census shall furnish such government with a copy of the names, with age, sex, birthplace, and color, of all persons enumerated within the territory in the jurisdiction of such municipality, and such copies shall be paid for by such municipal government at the rate of 25 cents for each one hundred names, and all sums so received by the Superintendent of Census shall be accounted for in such way as the Secretary of the Interior shall direct, and covered into the Treasury of the United States to be placed to the credit of, and in addition

to, the appropriation herein made for taking the Eleventh Census.

SEC. 24. That the Secretary of the Interior may authorize the expenditure of necessary sums for the traveling expenses of the officers and employes connected with the taking of the census, and the incidental expenses essential to the carrying out of this act, including the rental of convenient quarters in the District of Columbia and the furnishing thereof, and an outfit for printing small blanks, tally-sheets, circulars, etc., and shall from time to time make a detailed report to Congress of such expenditures.

SEC. 25. That the act entitled "An act to provide for the taking of the tenth and subsequent censuses," approved March 3, 1879, and all laws and parts of laws inconsistent with the provisions of this act are hereby repealed; and all censuses subsequent to the Eleventh Census shall be taken in accordance with the provisions of this act unless Congress shall hereafter otherwise provide.

This measure was amended and passed the Senate Feb. 18, 1889. The third section was amended by changing the words "one disbursing clerk" so as to make them come after "a chief clerk." In section 4 the oath is prescribed for Superintendent as well as supervisors. At the end of section 5 the following clause was added:

Whenever it shall appear that any portion of the enumeration and census provided for in this act has been negligently or improperly taken and is by reason thereof incomplete, the Superintendent of the Census, with the approval of the Secretary of the Interior, may cause such incomplete and unsatisfactory enumeration and census to be amended or made anew, under such methods as may in his discretion be practicable.

In section 11 a clause was added giving compensation of five cents for each surviving soldier, sailor, or marine, or the widow of a soldier, sailor, or marine enumerated. The following clause was inserted in section 17:

He shall also, at the time of the general enumeration herein provided for, or prior thereto, as the Secretary of the Interior may determine, collect the statistics of and relating to the recorded indebtedness of private corporations and individuals, and make report thereon to Congress; and he shall collect, from official sources, information relating to animals not on farms.

In section 23, after the word "color," the words "or race" were inserted. In the main however, the various Senate amendments were verbal and technical and merely designed to perfect the text of the measure. To meet the increased expense involved in the important amendment to section 17, the limit of census expenditure was increased to \$6,400,000. Feb. 28 the House concurred in the Senate amendments.

Department of Agriculture.—At the first session of the Congress, the House passed, May 21, 1888, a bill "to enlarge the powers and duties of the Department of Agriculture, and to create an executive department to be known as the Department of Agriculture." This measure made the head of the Agricultural Department a Cabinet officer and transferred to that department the Weather Bureau. September 21 the Senate amended and passed the bill, striking out the provision transferring the Signal Service. The House non-concurred in the Senate amendment, and a conference committee was appointed. The conferees, on the part of the House, held out for a time for the original pro-

vision for a transfer of the Weather Bureau from the War Department to the Agricultural Department; but, failing to move the Senate conferees on this point, they tried to secure an amendment transferring the Geological Survey and the Fish Commission. But they could obtain no such concession, and finally accepted the Senate amendment. The conference report was adopted Feb. 1, 1889, and the President approved the measure Feb. 11.

Pensions.—At the first session of the Congress the Senate passed the following bill to increase pensions in certain cases:

Be it enacted, etc., That from and after the passage of this act all persons who, in the military or naval service of the United States and in the line of duty, have lost both hands, or the use of both hands, shall be entitled to a pension of \$100 per month.

Jan. 28, 1889, the House amended the bill by striking out the clause "or the use of both hands." The Senate concurred in the House amendment Jan. 31; and the measure was approved by the President, Feb. 13.

At the first session of the Congress, Mr. Blair, of New Hampshire, introduced a bill for the relief of women enrolled as army nurses. On Jan. 28 he reported from the Committee on Pensions a substitute prepared by Mr. Cockrell, of Missouri, which was passed as follows:

That all women nurses during the late war and prior to Aug. 4, 1865, who were approved by Miss D. L. Dix, "superintendent of women nurses," or her authorized agents, or specially appointed by the Surgeon-General or other proper United States authority, and who rendered six months' service as such, or who, prior to the completion of such term of service, were disabled in such service and honorably discharged by reason of such disability, shall be granted a pension during life at the rate of \$25 per month from the passage of this act, according to such rules and regulations as may be prescribed by the Secretary of the Interior.

SEC. 2. That such women nurses as are now receiving pensions under special or general laws at a less rate than \$25 per month, and may be entitled to the benefits of this act, may, on proper application to the Commissioner of Pensions, receive the said sum of \$25 per month.

SEC. 3. No fee, compensation, or allowance shall be paid to, received, or accepted by any agent, attorney, or other person instrumental in the prosecution of any claim for pension under this act. And it shall be the duty of the Interior and War Departments to render all proper aid to applicants.

Mr. Edmunds, of Vermont, said in regard to the bill: "I should be glad to have my friend from New Hampshire explain to the Senate the principle on which this bill rests, making a distinction in favor of female nurses as against male nurses, and as it respects the putting of these lady nurses on the pension-roll. Some of them, I have no doubt, are just as well entitled to pensions as are thousands of soldiers who fought all the time or who came home and have as yet no pensions. I dare say there may be some good ground for it, but I confess I do not quite understand it."

Mr. Blair said in answer: "I am not in a situation to debate this bill, because I only have the opportunity of thus getting it before the Senate; but the Senate will remember a great many efforts during the previous session, and I am

sure the Senate understands the general ground on which these few old women are to be pensioned. There are scarcely any of them, and I do not know of any, who are not really dependent, and all of them are getting to be quite old. The Senator from Missouri is not apt to err in the line of improperly loading up the pension-roll of the United States with cases which are not meritorious, and after considerable conference this substitute for the bill has been agreed to by him, and I am exceedingly anxious to have it disposed of now if possible. Otherwise we shall get no action during the present Congress. It covers not many cases, as I understand only a few hundred, and they are cases of great need. I do not know of any who are able to get along without this aid. They are required to have rendered six months' service and to have been honorably discharged (and many of them rendered several years' service), or they must have been disabled during the period of their service in order to get a pension at all."

The measure was not brought to a vote in the House.

Various other pension measures were proposed, but none of them were seriously considered by either House at the second session of the Congress.

Samoa.—On Jan. 29, 1889, the Committee on Appropriations reported the following amendments to the diplomatic and consular appropriation bill passed by the House:

For the execution of the obligations and the protection of the interests of the United States, existing under the treaty between the United States and the Government of the Samoan Islands, \$500,000, or so much thereof as may be necessary, to be expended under the direction of the President, this appropriation to be immediately available.

For the survey, improvement, and occupation of the bay and harbor of Pago Pago [or Pango Pango] in the island of Tutuila, Samoa, and for the construction of the necessary wharves and buildings for such occupation, and for a coaling station therein, under the direction of the President, \$100,000, this appropriation to be immediately available.

In support of these amendments, Mr. Sherman, of Ohio, said: "The time has arrived when Congress, and especially the Senate, must give intelligent attention to the questions involved in the occupation and settlement of the Samoan Islands. These questions are now exciting profound attention, not only in this country, but in Great Britain and Germany. While supporting the amendments proposed by the Committee on Foreign Relations, reported now from the Committee on Appropriations, I think it is due to the Senate and the people of the United States that I should state in a skeleton form the chief facts in regard to this matter, and that, too, without any feeling whatever, without any desire to interfere with our diplomatic negotiations or to disturb the harmony of our relations with Germany or Great Britain. I hope that the action of the Senate will be unanimous upon the adoption of these amendments, and that a frank and open debate will tend to this result.

"The Samoan Islands, formerly called the Navigator's Islands, are situated in the South Sea, almost midway between San Francisco and Australia, on the direct line of commercial intercourse from every part of America to the Australian or Polynesian Islands and settlements.

Their locality commands the natural interest of many nations. In extent they are comparatively insignificant, containing but about a thousand and forty-eight square miles composed of eight or ten different islands, the chief of which are Savaii, Upolu, and Tutuila, separated from each other by short distances. They are peopled by 32,500 innocent, harmless, tractable, and good-humored natives of the Polynesian race, about 1,000 blacks taken there as laborers, and about 300 foreigners, nearly all of whom are either Germans, Americans, or English, occupying various commercial establishments there.

"These islands were first explored and surveyed in a scientific way by Admiral Wilkes in his famous exploration in 1840. The best maps of those islands within our reach are still the maps furnished by that expedition, and they are contained in the book of maps I have here before me. Admiral Wilkes was so impressed with the importance of those islands that he made surveys of the harbors and bays connected with them. The chief harbor, that of Pago Pago, in the island of Tutuila, is mapped with the soundings, etc., and is contained in the charts before me.

"Samoa has been since that time visited by many people. As I have said, it is in the line of communication from San Francisco to Australia. It has been in a measure settled and occupied since 1860 by Germans, English, and Americans. The attention of the Government of the United States was early called to it by the rather chivalric or adventurous experience of Colonel Steinberger, a citizen of the United States, who was sent there in 1873 as a special agent to ascertain all he could about this group of islands, and he made to the State Department an interesting report of his observations and intercourse with the Samoan people.

"During this visit he made something in the nature of an agreement or an arrangement with the King of the Samoan Islands, but it did not assume the form of a treaty, and was not brought before the Senate. He afterward became prime minister to the King, but was involved in one of the innumerable revolutions of the country, and was arrested and deported in an American vessel.

"So matters proceeded until in 1878 a treaty was made between the United States and the King of the Samoan Islands. I will read one or two articles of that treaty. It was signed by Mr. Evarts when Secretary of State, now a member of the Senate, and by Maimea, the minister of the King. The second article of the treaty, and the most important one, so far as it affects our interests, provides that:

Naval vessels of the United States shall have the privilege of entering and using the port of Pago Pago and establishing therein and on the shores thereof a station for coal and other naval supplies for their naval and commercial marine, and the Samoan Government will hereafter neither exercise nor authorize any jurisdiction within said port adverse to such rights of the United States or restrictive thereof. The same vessels shall also have the privilege of entering other ports of the Samoan Islands. The citizens of the United States shall likewise have free liberty to enter the same ports with their ships and cargoes of whatsoever kind, and to sell the same to any of the inhabitants of those islands. All such traffic, in what-

ever articles of trade or harter, shall be free, except that the trade in firearms and munitions of war in the islands shall be subject to regulations by that Government.

"The fifth article provides that:

If, unhappily, any differences should have arisen, or shall hereafter arise, between the Samoan Government and any other Government in amity with the United States, the Government of the latter will employ its good offices for the purpose of adjusting those differences upon a satisfactory and solid foundation.

"This treaty is the basis of our right to occupy and hold and establish in the Bay of Pago Pago and on the adjacent shores of the island of Tutuila a station for coal and other naval supplies."

After citing treaties of Samoa and with Great Britain and Germany securing the independence of the islands, Mr. Sherman said: "I need not dwell upon the painful features of the civil wars that have prevailed there, nor upon the general judgment expressed by all the consular agents there, and by the gentlemen who were afterward sent there to examine into the nature of the government and the nature of these people, that from their character, from their peculiarities, they seemed to be totally unfit to conduct a regular form of government. Upon this question there is an almost uniform expression of opinion. I will read what is said by Mr. Bates, the agent sent there in 1886, and he expresses only that which is stated by the British agent. He says:

Such being the elements of society, with due regard to which any government in Samoa must be constituted, I must report, as the result of my intercourse with and observations of the Samoans, my thorough conviction that they are unable now, unassisted, either to construct or maintain a government which will enforce authority or command respect. A system of government of their own they undoubtedly had, and, to a limited extent, still maintain, but it has been so interrupted and interfered with by the foreigners who have settled among them that it is doubtful, even if all disturbing influences were removed, whether they could now restore it. They have never had a government which was worthy of the name as we understand it. They have no conception of the modern idea of government. That any system of laws should hear equally on all men is to them a thing impossible of comprehension. Probably no better evidence of the truth of these statements could be had than the history of the country for twenty years past.

"As a matter of course, these papers disclose that all the time since the country has been known, since the first treaty was made with America, there have been civil wars there, civil contentions, rivalries between chieftains, two families, each claiming the right to rule. There are many peculiar features of the government which we can scarcely comprehend. They have no idea of a permanent government. While one side is uppermost to-day, the other may be to-morrow. That state of civil war continued from 1873 until, in 1883, by the aid of the consuls of the three great powers, they finally agreed to settle their differences and agreed that Malietoa should be King, and that Tamasese should be Vice-King, without very distinct ideas as to the definite tenure or nature of their respective offices. One was King and the other was Vice-King. That arrangement seems to have been

brought about by the friendly co-operation of the consuls of these three governments, and was probably the first and most formal establishment of a government in the Samoan Islands; and such would always be the result of the co-operation of the three consuls acting harmoniously together.

"But soon after that difficulties arose between the citizens, traders, and consuls of the three powers of a different character. Movements were made in Australia and in New Zealand to annex the Samoan Islands to the British colonies. Perhaps I ought to read to the Senate one or two items showing what steps had been taken and what progress made in that direction. Malietoa himself was in that movement, and though acknowledged to be King, himself applied to the Queen of England and to the authorities of New Zealand for permission to be annexed to Great Britain—a manifest violation of the treaty not only with Germany but with the United States.

"The German Government, or the German consul, rather, because he seems to be supreme there, entered into a treaty on the 10th of November, 1884, which is bitterly complained of by Malietoa, bitterly complained of by the authorities, and referred to by him in his letter to the Queen. The German consul, with military force, as he charges, compelled him to sign a treaty, and then refused to give him a copy of it or to read it to him. Whether that be so or not I do not know, because I think there must be a good many statements in these documents that can not be relied upon as absolute verities. But the fact is that the treaty of Nov. 10, 1884, was ratified or approved in the first instance by the Berlin Government and was communicated by it to our Government. An appeal was made by the German Government to the American Government to acquiesce in that treaty of Nov. 10, 1884, which practically made German power supreme over Samoa. It established a German council to rule and govern the country, and superseded the municipal board of consuls."

Rapidly detailing the complications that had arisen out of the attitude of the German authorities in Samoa, Mr. Sherman said, in conclusion: "We can do all I propose without endangering the peace of this country. I believe this contention can be settled by a straightforward, manly negotiation entered into between these three great Christian powers, to either of whom these little islands must appear to be a mere mote on the ocean; and it would be a shame and a disgrace to our civilization and to our Christianity if these three powerful nations can not agree upon some mode of autonomy, some mode of government for this far-distant region of islands, where we all have equal interests and equal power.

"Therefore I do not doubt that in some way or other, by the election of a new king or by some mode of agreement, probably improving their form of government, with the hearty assent of the people of that country, if they are prepared really to assent to anything, a government of that kind may be set up for local purposes there among the islanders, while the great powers may provide for themselves in Apia all the security necessary for their commercial enterprises. That, I hope, will be done.

"Whatever the newspapers may say, there is nothing in the situation that would justify on the part of either nation a breach of the peace until every effort is exhausted to bring about a peaceful and quiet settlement of this controversy. To me it seems the smallest controversy in which the United States could be or has ever been engaged. It does not seem to me that Germany, whose people are like our own, and Great Britain, with their boundless empire, will ever allow the disgrace to be inflicted upon our civilization of having a single man of either of these nations killed in war or contest over this puerile controversy. That is the way it looks to me.

"Now sir, I say therefore, first, we want to assert our rights and maintain and uphold them, and nobody will call them in question. Next, we want to do what we ought to do to these poor people there who first treated with us, who have leaned upon us, and who have reminded us over and over again that we promised them our good offices, and they understand by that something more than a diplomatic note. This we can accomplish. Therefore, Mr. President, I am willing to vote any sum of money to enable the President either to conduct negotiations, to make surveys of the harbors, or to get better information in regard to the country there. I am willing to vote the sum named here and place it at the discretion of Mr. Cleveland or of General Harrison, and I have no doubt with the powers thus given to them to send agents there or to send ships there they will bring about a prompt solution of this small controversy."

Mr. Dolph, of Oregon, advocated vigorous action, and made a long argument favoring the application of the Monroe doctrine to the acquisition of territory in the Pacific by European powers. As to their progress there, he said: "The numerous island groups of the Pacific have one by one passed under the control of European powers. Recently the remaining islands not already subject to foreign control, excepting the Sandwich Islands, the Samoan Islands, and perhaps one other group, were partitioned between Germany and Great Britain, and now it seems evident that Germany is pursuing a plan to secure control of the Samoan Islands with the acquiescence of Great Britain. When that is accomplished Germany and Great Britain will be ready for fresh operations and further acquisitions of territory in the Hawaiian Islands, and we, feebly remonstrating, allow our treaty rights to be disregarded, the lives of our citizens to be jeopardized, their property destroyed, the Monroe doctrine to sink into innocuous desuetude.

"The manner in which the islands of the Pacific have been partitioned out among the European powers is thus stated by Secretary Bayard in a dispatch to Mr. Pendleton of Jan. 17, 1888, in reply to a communication of Prince Bismarck to the German minister at Washington, complaining of the anti-German attitude assumed by the American consul-general at Apia, Mr. Sewall:

Should the opinion which has been expressed as to the part taken by the United States in seeking to preserve the independence of the Samoan Islands seem in any degree extravagant, it will no longer appear to be so when what has taken place in the last three years in regard to other island groups in the Pacific is considered.

Prior to that period Spain was holding the Ladrone

or Marianne and the Philippine Islands, and had also laid the basis of a claim of title to the Caroline Islands, although she did not maintain an active government there.

Between the years 1842 and 1847 France established a protectorate over the Marquesas, Society, and Paumotu groups, and in 1853 occupied New Caledonia. In 1864 she formally assumed control of the Loyalty Islands, and in 1880 added Tahiti to the list of her colonies in the Pacific.

In addition to the continent of Australia, to which Great Britain holds a comparatively ancient title, that Government had also acquired the Fiji Islands and New Zealand, the sovereignty of the latter being ceded in 1840 and that of the former on the 10th of October, 1874.

Germany had not then entered upon her present active policy of colonization in the Pacific, although her subjects had carried on a considerable commerce there, and had established places of trade on various islands, including the Samoan.

Such was the condition of affairs at the beginning of the present decade, nor was there observable at that time any marked evidence of the desire for new territorial acquisitions; but, beginning in 1884, numerous island groups have, in rapid succession, passed, in whole or in part, under the control of various European powers, until almost the last vestige of native autonomy in the islands of the Pacific has been obliterated.

The year 1884 witnessed the occupation by Germany of the northern side of New Guinea, from Cape King William to Astrolabe Bay, the imperial flag being hoisted at twelve different points. Almost coincidentally Great Britain occupied the south coast of the island, and in the months of November and December in the same year seized and occupied the Louisiade group, Woodlark Island, and Long and Rook Islands.

In the following year arose the dispute between Germany and Spain over the Carolines, which was terminated by the protocol signed at Rome on the 17th of December, 1885, under which Germany acknowledged the sovereignty of Spain over these islands and the Pelew group; and they have now passed finally under Spanish control.

But these events were merely the precursors of others, of which the seizure by France in 1886 of the New Hebrides was not the most significant. On the 6th of April of that year a joint declaration was made by Germany and Great Britain, which contemplated the absorption by those two powers of almost all the independent territory in that part of the Pacific Ocean called the West Pacific, lying between the fifteenth degree of north and the thirtieth degree of south latitude and between the one hundredth and sixty-fifth degree of longitude west and the one hundred and thirtieth degree of longitude east of Greenwich, which had not already been occupied by some foreign power. Through that part of the Pacific included in those bounds of latitude and longitude a line of division was drawn to mark the respective spheres of British and German influence and annexation; and each joint declarant agreed not to make any acquisitions of territory, nor to establish protectorates, nor to oppose the operations of the other in the sphere of action respectively assigned to it.

Under this declaration and agreement, from which Samoa, Tonga, and Niné Island were excepted, and by the line of division drawn as above stated, New Ireland, New Britain, and the adjacent western half of the Solomon group passed under the dominion of Germany, and certain islands west of the line to Great Britain.

On the first of August, in the same year, the latter Government took possession of the Kermadec Islands, and by the imperial decree of the 18th of the ensuing month the Marshall, Brown, and Providence Islands and groups were occupied by Germany.

As the result of what has been above detailed, of the vast aggregate of territory in the Pacific Ocean but

a few island groups, containing a few thousand square miles, remain to-day as independent and autonomous.

Long anterior the United States had acquired, by discovery and occupation, the uninhabited island, or ocean reef, of Midway, as a possible coaling station.

In view of these facts, it is unnecessary to emphasize the importance attached by this Government to the maintenance of the rights to which the United States has become entitled in any of the few remaining regions now under independent and autonomous native governments in the Pacific Ocean.

Prince Bismarck has referred to this Government's treaty with Hawaii, of the 30th January, 1875, which has lately been renewed, and which is said by him to give the United States commercial advantages in those islands superior to those possessed by any other foreign power. In respect to this it needs only to be observed that the treaty was one of special reciprocity which both the contracting parties were alone competent to make, and that the United States has at no time, since the convention was concluded, sought to use it to control the native government of the islands or to regulate their internal affairs against the wishes of the inhabitants, although the geographical and historical relations of the group to the United States necessarily gives this Government an interest in the future of the islands such as no other foreign government can possibly possess.

"As I have said, there would be nothing inconsistent with our established policy in the United States interfering to preserve the independence and autonomy of the Samoan Islands as against the encroachments of a European power, or even of assuming a protectorate over them, if necessary to secure peace, order, and the protection of our interests there. A protectorate assumed upon the invitation and with the consent of the native government for the purpose of preventing the forcible interference of other nations would be a very different thing from intervention as practiced by European powers on the Continent of Europe.

"Pacific intervention which seeks the settlement of differences between nations, and, if successful, results in a treaty, a congress, or international conference, is justifiable and may be commendable; but armed intervention by one or more nations with the internal affairs of another nation can not, in my judgment, be defended upon principles of right or justice. Among nations, as among individuals, equality is equity. Forcible intervention is inconsistent with the equality and the independence of nations. On the Continent of Europe whenever a pretext has been wanted for war with a weaker nation and the acquisition of its territory it has been found in the doctrine of intervention.

"It has more than once served as the pretext for the spoliation of the weak by the strong. By the forcible intervention of the monarchies of Europe revolutions have been crushed, the progress of nations prevented, tottering thrones and kingly power sustained, the map of Europe changed, governments destroyed and their territory partitioned among neighboring nations, and what was created one day destroyed the next. The exercise of it is defined by no law, regulated by no precedents, and is governed only by the interests of the hour. The right denied at one time by a nation is asserted under precisely similar circumstances when self-interest demands it."

The proposed amendments were adopted by the Senate; the House non-concurred, and a conference committee was appointed. As a result of

the conference, the appropriation of half a million dollars, to be expended by the President for the execution of the obligations and the protection of the interests of the United States in Samoa under existing treaties, was agreed to. The amendment making a port for Pago Pago harbor was abandoned, as it was covered by an item in the naval appropriation bill.

Laborers on the Panama Canal.—On Feb. 11, 1889, the Senate passed the following bill, entitled "An Act to enable the President to protect the interests of the United States in Panama":

Be it enacted, etc., That there be, and is hereby appropriated, out of any money in the Treasury not otherwise appropriated, the sum of \$250,000 to enable the President to protect the interests of the United States and to provide for the security of persons and property of citizens of the United States at the Isthmus of Panama, in such manner as he may deem expedient.

The measure was reported to the House on Feb. 15, and Mr. McCreary, of Kentucky, said, in explanation of it: "A few days ago the President of the United States sent to Congress a message referring to possible disturbances on the Isthmus of Panama in the event of the stoppage of work on the proposed interoceanic canal, and inclosed a report from the Secretary of State, with accompanying correspondence. Since that time work on the Panama Canal has stopped; and there are now something like 15,000 laboring men thrown out of employment, many of them very destitute. Of that number, as I am informed, between four and five thousand are Americans. This emergency has caused the minister of the United States at Bogotá to send the following dispatch to Secretary Bayard:

The Colombian Government fears disorders, and requests the United States to provide means to transport home discharged laboring men from Panama Canal. Great Britain has been similarly asked.

MAURY.

"After this dispatch was received, Mr. Bayard wrote a letter to the chairman of the Committee on Foreign Relations of the Senate, from which I now read an extract:

I hasten to place before you a copy of a cipher telegram received late last night from Mr. Maury, our minister at Bogotá, by which you will perceive the expediency of hastening as rapidly as possible the action of Congress toward enabling the President to provide transportation of United States citizens from the Isthmus of Panama, in order to save them from the disasters threatened by the stoppage of work on the Panama Canal.

"As I have stated, work has now stopped. Members of this House are most of them familiar with the treaty of 1846 between the United States and New Granada. Under the treaty of the United States with New Granada (now the United States of Colombia), made in 1846, the United States is required to maintain an uninterrupted and unembarrassed right of transit across the Isthmus of Panama. Not only that, but our Government has guaranteed the neutrality of the Isthmus of Panama, and also guarantees the sovereignty and the property which New Granada possesses there. The Senate of the United States has already passed this bill. The Committee on Foreign Affairs of the House of

Representatives unanimously recommend its passage, and action should be taken immediately. Between four and five thousand Americans are now in Panama, many of them in a destitute condition, and the object of the bill is to enable the President to protect the interests of the United States and provide for the security of the persons and property of citizens of the United States at the Isthmus of Panama."

The bill passed the House the same day and was approved by the President Feb. 26.

Retiring Gen. Rosecrans.—On Feb. 15, 1889, the Senate passed the following bill for the relief of William S. Rosecrans:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President be, and he is hereby authorized to nominate, and, by and with the advice and consent of the Senate, to appoint William S. Rosecrans, late a major-general of United States Volunteers, and brigadier-general in the regular army of the United States to the position of brigadier-general in the army of the United States, and to place him upon the retired list of the army as of that grade (the retired list being thereby increased in number to that extent); and all laws and parts of laws in conflict herewith are suspended for this purpose only.

When the subject was brought up in the House Feb. 22, there was a rancorous debate on the passage of the measure. Mr. Struble, of Iowa, said, in opposition, to it: "In my judgment, it is not good policy to continue in the line of encouraging our officers in the regular army, after having been educated by the Government and fitted for that service and assigned to their respective positions, to give up their places in the army of the United States and retire from that service with a view of accepting political honors or business vocations, and after making such trial as each may see proper in such line as may be chosen, to come to Congress and request restoration to rank theretofore held by them.

"I wish to say that, in my opinion, if this policy is pursued it will be in its tendency demoralizing to our regular army service. I think it ought not to be pursued further, but rather when our cadets go from West Point and take their positions in the regular army of the country, it ought to be the understanding that they should hold the places to which they have by the Government been assigned; or if they voluntarily abandon them for other positions, whether in political or business life, they can never expect to be restored to their former military status. I have stated the most serious objection I entertain to this bill, but while I have another—and one that I feel intensely—before proceeding to state it, let me say that it is not my purpose to indulge in any filibustering tactics to defeat or postpone final action on the bill.

"My mind runs back to-day to the Forty-eighth Congress, to the second session thereof, when the friends of General Grant on both sides of the House were intensely anxious to do a noble deed, that the heart of the old commander might, in the gloom of rapidly approaching night—the night of death—be somewhat cheered and sustained. The session was fast waning. The bill proposing to restore him to his former rank was finally called up, but serious opposition was found to exist to its passage. From what source did it come, and who led the opposition? Was

it one of the then so-called "brigadiers," one of those who might have felt a lingering bitterness toward the old hero because of his career while leading armies in the South? No. Some of these had objections to the bill, but the one prominent, persistent, bitter, and unyielding foe of that humane measure was the gentleman who is now so anxious to be placed on a military list from which he retired in time of war and of peril to the Union. Can any of us on this side of the chamber who were here forget the spirit of unrelenting hatred with which Gen. Rosecrans then pursued Gen. Grant? Others possibly may, but I can not and will not.

"There is a homely old maxim that I am told obtains even among the lowest classes who engage in personal combat, as well as in higher circles of pugilists, and that is, 'Never kick a man when he is down.' At the close of the Forty-eighth Congress and at the time to which I have referred, the dear old warrior who had, more than any other man, saved us a nation, was 'down'—down on a couch of intensest suffering and near the last day of his earthly life. Did the beneficiary in this bill exhibit a sense of common humanity, of sympathy for a fellow-man down and dying? No, verily! On the contrary, he continued to kick the poor, helpless creature until forced off the floor of the House by the persuasion of those of his associates whose hearts beat in unison with those of the people in all parts of the land, and whose tears flowed copiously at the thought of the silent, uncomplaining warrior who was then so grandly battling the great foe of us all."

Mr. Anderson, of Iowa, said, in support of the measure: "Mr. Speaker, hand in hand with bravery go generosity and charity. No man in this presence had greater admiration for the great captain of his time than I had while he was living, and there is no man that reveres his memory, now that he sleeps the last sleep, more than I. I was in a frame of mind at the time, in consequence of the assault that Gen. Rosecrans made upon that great captain, that made me feel I would never forgive him. But I have changed with time, and I have come to the conclusion that the manly thing, and the brave and charitable thing to do (in view of the great infirmities of human nature that attach to the great heroes that came from the war, as well as to other men), is to overlook them, and this has changed my purpose and will cause me to give my vote for the passage of this bill.

"With all Gen. Grant's heroism, with all his greatness, he had his imperfections, and he from time to time, the war being over, made criticisms of men that he regretted. The same is true of that very distinguished general that followed in his wake. He likewise has said things he regretted.

"I served throughout the entire war, and, knowing what I do of the perils and hardships of that struggle for national life and of the value of the services rendered, I never have and never will lift my voice or cast my vote to withhold any honor or favor from any one of the loyal heroes engaged, from the grand commander of all the armies to the humblest soldier in the ranks.

"I have said it, and am willing to say and still

believe that the brave soldiers throughout the length and breadth of this country, notwithstanding the record that my colleague has placed here before the House, will justify in the long run a vote in favor of this bill."

Mr. Cutcheon, of Michigan, said: "Mr. Speaker, I shall vote for this bill, not because of what Gen. Rosecrans said in regard to Gen. Grant, for I deeply regret that, but I shall vote for this bill because of what Gen. Rosecrans did in the war that maintained the Union. When the tocsin of war sounded, Gen. Rosecrans did not hesitate or palter, but he left everything behind him and laid all that he had upon the altar of his country, and when we needed victory, when this country in its heart of hearts was aching for want of victory, Gen. Rosecrans, in the very beginning, in West Virginia, gave us victory. Again, in the far Southwest, at Iuka, he gave us victory. He was promoted step by step from colonel to brigadier-general, and from that to major-general, and was placed at the head of the Army of the Cumberland, and again, in the closing days of December, 1862, at Stone River, he lighted the horizon of this whole country from edge to edge with the fires of victory. Then, following that, he gave us one of the most magnificent specimens of perfect strategy that the entire war afforded, in the Tullahoma campaign, when, almost without the sacrifice of a life, he flanked Bragg out of his fortified position at Tullahoma and carried his army across the mountains into the valley of Chickamauga.

"I know, Mr. Speaker, that there is an impression that the Battle of Chickamauga was a disaster to the Union arms; but in that it achieved that for which it was fought, in that it gave us Chattanooga as the key of the position and the center of a new advance, the Battle of Chickamauga was a victory. Disastrous it was, indeed, upon the field, but it accomplished the purposes of victory in that we held the place for which we fought. We can afford to forget what Gen. Rosecrans may have said, but we can not afford to forget what Gen. Rosecrans did. We can not afford to ignore the fact that he led one of the great armies of the Union and led it to victory. We can not afford to forget that now, in his old age and poverty, he comes to the Government, which he did almost as much as any one man to save, and asks that, out of its plenitude, out of its wealth, out of its greatness, it shall extend to him the aid which he requires in his decline. For these reasons, I shall vote for this bill most gladly."

Mr. Holmes, of Iowa, took the same position; "Mr. Speaker, it was my honor and pleasure to serve in the campaigns of both Gen. Grant and Gen. Rosecrans, and I am astonished that any true friend of Gen. Grant can rise upon this floor and attempt to cast Parthian shafts at Gen. Rosecrans. Gen. Rosecrans stands out as one of the great figures of history in connection with that war; and although the days of fire, of iron, and of blood have passed, gentlemen rise here and attempt to arraign Gen. Rosecrans for something that he has said since the days of peace came in. No man here has denied the justice of placing Gen. Rosecrans upon the retired list of the army. No man has denied the grand services that he rendered to this country

through that long night at Stone River, or his services at Chickamauga, at Iuka, and in the many battles in which he was engaged. He was competent everywhere, glorious at all times, and the men who followed him and fought with him will never see his name clouded and be silent.

"Gen. Grant was an autocrat when the war ended, and endeavored to blot out the name of Gen. Rosecrans, as it were, from the roll of the army. He attempted to tarnish his fair fame. While I was a friend of Gen. Grant, and have voted for every measure that was calculated to benefit him or his family, and while the American people have piled Pelion on Ossa in doing him justice and taking care of him, it ill becomes any man to rise here in his place to-day and attempt to denounce Gen. Rosecrans. I am sorry to hear my colleague from Iowa among the opposition. I remember how gallantly my other colleague, Gen. Weaver, fought under Gen. Rosecrans, and how distinguished a record he made.

"Let us here to-day, in voting upon this bill, vote not upon what Gen. Rosecrans said. I have no defense to make of any ill-timed remarks that he may have made. But Gen. Grant, in his final report of the war, did great injustice to Gen. Rosecrans; and I think he also did him great injustice in his memoirs. Yet we did not refuse to pension Gen. Grant on that account. Let us lay aside these small bickerings about what Gen. Rosecrans or any other man has said in a time of peace, and let us do justice to men for what they did in time of war. That is the true issue; that is the true guide in dealing with a question of this kind.

"Among all the men who have been placed on the retired list of the army there is no man who is on general considerations more entitled to it than Gen. Rosecrans. He is poor to-day, and needs the little assistance which this bill will give him."

Mr. Perkins, of Kansas, said, in opposition, to the measure: "If his argument and opposition to the bill to place Gen. Grant upon the retired list was sincere and honest, how can he or his friends in consistency ask to have this bill passed for his relief? If Grant, in his feebleness and with his honors and grand achievements, should not be placed upon the retired list of the army, who can say that such a favor should be conferred upon the beneficiary of this bill, Gen. W. S. Rosecrans? Who that heard the speech of Gen. Rosecrans in opposition to the Grant bill, and believed him an honest man, can favor this bill for his relief, that he denounced so bitterly as wrong in principle and unjust to the country?

"Gen. Rosecrans was educated at the expense of the Government. For a time he served it in its military ranks, and then retired to the pursuits of private life, and when the war of the rebellion came upon us, he was commissioned as a volunteer officer and served the country creditably and well. And yet those who are here to-day and who had the honor of serving in the ranks of the Union Army at Chickamauga, know that if it had not been for that grand old soldier and hero, George H. Thomas, who stood there and whose columns formed a solid wall against which the Confederate Army broke itself in pieces, the name of Gen. Rosecrans would have gone down in dishonor rather than in honor as it stands to-day.

"Remembering this, and remembering what his country has already given him, and remembering the position he took upon the bill to which I have already referred when it was before the House for consideration, I, as one, think we ought not to confer this privilege upon him. Twenty-five years ago he voluntarily left the army to engage in business and political activities. His energies have been devoted to personal and political enterprises, and for all service rendered the Government of the United States as a soldier or otherwise he has been fully paid, and, as before suggested, I can not see how he or his friends, in consistency or with propriety, come to Congress and ask the country to pay him \$5,500 per year as a retired officer the balance of his days, he to give in return no service or consideration to the people of the United States. For these and other reasons I can not support the bill."

Mr. Jackson, of Pennsylvania, made this plea for Gen. Rosecrans: "Mr. Speaker, there is a story which, I believe, is authentic, that shortly after the election to the presidency of Andrew Jackson, at which time there was prevalent an idea that men who agreed with the Administration in politics ought to have the offices, delegations from the State of New York visited the President to ask him to remove the postmaster at Albany, who differed with him in politics and had been appointed by a previous Administration. It happened that the postmaster was an old soldier in the War of 1812. One delegation failed of its mission, and another came still more urgent. Finally, as an unanswerable argument, as it was supposed, a member of one of the delegations said to the President, 'This postmaster not only opposed your election, Mr. President, but he has called you names and tells the worst kind of stories about you.' Andrew Jackson replied, 'A man that fought like this man did at Lundy's Lane and carries British lead in his body has a right to call me what he pleases. I take the responsibility. He won't be removed.'"

"I think a man who served the country as Gen. Rosecrans did in West Virginia on that fearful day at Corinth, at Stone River, and at Chickamauga, has a little right in his old and declining years to talk. I feel very leniently toward any old soldier who has served his country well. I do not think he gives away his right to have justice and recognition by a hasty and unguarded word. I had the honor, in a very humble capacity, to serve for about four years as a soldier in the Army of the Tennessee, and every soldier of that army points with pride to the fact that our first commander was Ulysses S. Grant. We had afterward as commanders Sherman, McPherson, Howard, and Logan. Every one of them we loved and adored. We never had a commander to leave us except to take a higher command. Of course we give the first place to Grant; in fact, I might almost say that the Army of the Tennessee idolizes his memory."

"I think I speak the general sentiments of soldiers of that organization when I say that our regard for his great services as a soldier and commander is such that we can not harbor ill-feeling against Gen. Rosecrans for any unguarded expressions since the war. I have not the least doubt you could to-day have almost a unanimous vote from the Army of the Tennessee to place

Gen. Rosecrans upon the retired list. Oh, says the gentleman on my right, if it had not been for Gen. Thomas at Chickamauga he would have left the field with his reputation ruined. Yes, and he might have said more. If it had not been for the grand heroes who carried muskets in the Army of the Cumberland, that field would have been lost. Just at this point I want to say that but for the men who fought in the ranks there is not a general who would have a reputation to-day. It was the enlisted men and subordinate commanders on every field that made reputations for the great generals. But it takes a great man to command an army and give them their due. It was Rosecrans who commanded at Corinth when that field was won. It was an exhibition of great generalship. It was a great victory, dearly won, but it saved the Southwest in 1862. It was Rosecrans who commanded and directed the brave men at Stone River on those fearful winter days when again the tide of battle was turned southward. It was under him Phil Sheridan first rode at the head of a division, and on this bloody field gave evidence of the high rank he was afterward to obtain. It was Rosecrans's skill and genius that manœuvred the enemy out of Chattanooga and gave the Army of the Cumberland a position at Chickamauga that enabled him to hold at bay Bragg's army, re-enforced by one of the best corps from the rebel army on the Potomac. Do not forget that it was under Rosecrans that Thomas stood, the Rock of Chickamauga."

"There was a day in the nation's peril when good Abraham Lincoln thought he ought to send the thanks of the nation to Gen. Rosecrans and the officers and men of his command for their great services in the field. I regret that men can not pass upon this question without bringing up matters that ought to have no relation to it. Let us do justice to this frail old man, who served his country well in the days of his strength and vigor. His generous, liberal nature has prevented his saving money for his old age. Gen. Grant's place in history is secure. It is not necessary to deal harshly with any soldier in order to place a laurel on his brow. Indeed, I feel quite sure, if the voices of Grant and Thomas could be heard, their noble spirits would say, 'Pass this bill!'"

The House passed the bill without a division, and the President approved of it, Feb. 26.

Amending the Interstate Commerce Law.—At the first session of the Congress, July 9, 1888, the Senate passed the following bill amending the "Act to regulate commerce," approved Feb. 4, 1887:

Be it enacted, etc., That section 6 of an act entitled "An act to regulate commerce," approved Feb. 4, 1887, be, and it is hereby, amended so as to read as follows:

"SEC. 6. That every common carrier subject to the provisions of this act shall print and keep open to public inspection schedules showing the rates and fares and charges for the transportation of passengers and property which any such common carrier has established and which are in force at the time upon its route. The schedules printed as aforesaid by any such common carrier shall plainly state the places upon its railroad between which property and passengers will be carried, and shall contain the classification of freight in force, and shall also state separately

the terminal charges and any rules or regulations which in any wise change, affect, or determine any part or the aggregate of such aforesaid rates and fares and charges. Such schedules shall be plainly printed in large type, and copies for the use of the public shall be posted in two public and conspicuous places in every depot, station, or office of such carrier where passengers or freight, respectively, are received for transportation, in such form that they shall be accessible to the public and can be conveniently inspected.

"Any common carrier subject to the provisions of this act receiving freight in the United States to be carried through a foreign country to any place in the United States shall also in like manner print and keep open to public inspection, at every depot or office where such freight is received for shipment, schedules showing the through rates established and charged by such common carrier to all points in the United States beyond the foreign country to which it accepts freight for shipment; and any freight shipped from the United States through a foreign country into the United States, the through rate on which shall not have been made public as required by this act, shall, before it is admitted into the United States from said foreign country, be subject to customs duties as if said freight were of foreign production; and any law in conflict with this section is hereby repealed.

"No advance shall be made in the rates, fares, and charges which have been established and published as aforesaid by any common carrier in compliance with the requirements of this section, except after ten days' public notice, which shall plainly state the changes proposed to be made in the schedule then in force, and the time when the increased rates, fares, or charges will go into effect; and the proposed changes shall be shown by printing new schedules, or shall be plainly indicated upon the schedules in force at the time and kept open to public inspection. Reductions in such published rates, fares, or charges shall only be made after three days' previous public notice, to be given in the same manner that notice of an advance in rates must be given.

"And when any such common carrier shall have established and published its rates, fares, and charges in compliance with the provisions of this section, it shall be unlawful for such common carrier to charge, demand, collect, or receive from any person or persons a greater or less compensation for the transportation of passengers or property, or for any services in connection therewith, than is specified in such published schedule of rates, fares, and charges as may at the time be in force.

"Every common carrier subject to the provisions of this act shall file with the commission hereinafter provided for copies of its schedules of rates, fares, and charges which have been established and published in compliance with the requirements of this section, and shall promptly notify said commission of all changes made in the same. Every such common carrier shall also file with said commission copies of all contracts, agreements, or arrangements with other common carriers in relation to any traffic affected by the provisions of this act to which it may be a party. And in cases where passengers and freight pass over continuous lines or routes operated by more than one common carrier, and the several common carriers operating such lines or routes establish joint tariffs of rates or fares or charges for such continuous lines or routes, copies of such joint tariffs shall also, in like manner, be filed with said commission. Such joint rates, fares, and charges on such continuous lines so filed as aforesaid shall be made public by such common carriers when directed by said commission, in so far as may, in the judgment of the commission, be deemed practicable; and said commission shall from time to time prescribe the measure of publicity which shall be given to such rates, fares, and charges, or to such part of them as it may deem it practicable for such common carriers to publish, and the places in which they shall be published.

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"No advance shall be made in joint rates, fares, and charges, shown upon joint tariffs, except after ten days' notice to the commission, which shall plainly state the changes proposed to be made in the schedule then in force, and the time when the increased rates, fares, or charges will go into effect. No reduction shall be made in joint rates, fares, and charges, except after three days' notice, to be given to the commission as is above provided in the case of an advance of joint rates. The commission may make public such proposed advances or such reductions in such manner as may, in its judgment, be deemed practicable, and may prescribe from time to time the measure of publicity which common carriers shall give to advances or reductions in joint tariffs.

"It shall be unlawful for any common carrier, party to any joint tariff, to charge, demand, collect, or receive from any person or persons a greater or less compensation for the transportation of such persons or property, or for any services in connection therewith, between any points as to which a joint rate, fare, or charge is named thereon than is specified in the schedule filed with the commission in force at the time.

"The commission may determine and prescribe the form in which the schedules required by this section to be kept open to public inspection shall be prepared and arranged, and may change the form from time to time as shall be found expedient.

"If any such common carrier shall neglect or refuse to file or publish its schedules or tariffs of rates, fares, and charges as provided in this section, or any part of the same, such common carrier shall, in addition to other penalties herein prescribed, be subject to a writ of mandamus, to be issued by any circuit court of the United States in the judicial district wherein the principal office of said common carrier is situated, or wherein such offense may be committed, and if such common carrier be a foreign corporation in the judicial circuit wherein such common carrier accepts traffic and has an agent to perform such service, to compel compliance with the aforesaid provisions of this section; and such writ shall issue in the name of the people of the United States, at the relation of the commissioners appointed under the provisions of this act; and the failure to comply with its requirements shall be punishable as and for a contempt; and the said commissioners, as complainants, may also apply, in any such circuit court of the United States, for a writ of injunction against such common carrier, to restrain such common carrier from receiving or transporting property among the several States and Territories of the United States, or between the United States and adjacent foreign countries, or between ports of transshipment and of entry and the several States and Territories of the United States, as mentioned in the first section of this act, until such common carrier shall have complied with the aforesaid provisions of this section of this act."

Sec. 2. That section 10 of said act is hereby amended so as to read as follows:

"Sec. 10. That any common carrier subject to the provisions of this act, or, whenever such common carrier is a corporation, any director or officer thereof, or any receiver, trustee, lessee, agent, or person, acting for or employed by such corporation, who, alone or with any other corporation, company, person, or party, shall willfully do or cause to be done, or shall willingly suffer or permit to be done, any act, matter, or thing in this act prohibited or declared to be unlawful, or who shall aid or abet therein, or shall willfully omit or fail to do any act, matter, or thing in this act required to be done, or shall cause or willingly suffer or permit any act, matter, or thing so directed or required by this act to be done not to be so done, or shall aid or abet any such omission or failure, or shall be guilty of any infraction of this act, or shall aid or abet therein, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof in any district court of the United States within the jurisdiction of which such offense was committed, be subject to a fine of not to exceed \$5,000 for each offense: *Provided*, That if

the offense for which any person shall be convicted as aforesaid shall be an unlawful discrimination in rates, fares, or charges for the transportation of passengers or property, such persons shall, in addition to the fine hereinbefore provided for, be liable to imprisonment in the penitentiary for a term of not exceeding two years, or both such fine and imprisonment, in the discretion of the court.

"Any common carrier subject to the provisions of this act, or, whenever such common carrier is a corporation, any officer or agent thereof, or any person acting for or employed by such corporation, who, by means of false billing, false classification, false weighing, or false report of weight, or by any other device or means, shall knowingly and willfully assist, or shall willingly suffer or permit, any person or persons to obtain transportation for property at less than the regular rates then established and in force on the line of transportation of such common carrier, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof in any court of the United States of competent jurisdiction within the district in which such offense was committed, be subject to a fine of not exceeding \$5,000, or imprisonment in the penitentiary for a term of not exceeding two years, or both, in the discretion of the court, for each offense.

"Any person and any officer or agent of any corporation or company who shall deliver property for transportation to any common carrier, subject to the provisions of this act, or for whom as consignor or consignee any such carrier shall transport property, who shall knowingly and willfully, by false billing, false classification, false weighing, or false report of weight, or by any other device or means, whether with or without the consent or connivance of the carrier, its agent or agents, obtain transportation for such property at less than the regular rates then established and in force on the line of transportation, shall be deemed guilty of fraud, which is hereby declared a misdemeanor, and shall, upon conviction thereof in any court of the United States of competent jurisdiction within the district in which such offense was committed, be subject for each offense to a fine of not exceeding \$5,000 or imprisonment in the penitentiary for a term of not exceeding two years, or both, in the discretion of the court.

"If any such person, or any officer or agent of any such corporation or company, shall, by payment of money or other thing of value, solicitation, or otherwise, induce any common carrier subject to the provisions of this act, or any of its officers or agents, to discriminate unjustly in his, its, or their favor as against any other consignor or consignee in the transportation of property, or shall aid or abet any common carrier in any such unjust discrimination, such person, or such officer or agent of such corporation or company, shall be deemed guilty of a misdemeanor, and shall, upon conviction thereof in any court of the United States of competent jurisdiction within the district in which such offense was committed, be subject to a fine of not exceeding \$5,000, or imprisonment in the penitentiary for a term of not exceeding two years, or both, in the discretion of the court, for each offense; and such person, corporation, or company shall also, together with said common carrier, be liable, jointly or severally, in an action on the case to be brought by any consignor or consignee discriminated against in any court of the United States of competent jurisdiction for all damages caused by or resulting therefrom."

SEC. 3. That section 12 of said act is hereby amended so as to read as follows:

"SEC. 12. That the commission hereby created shall have authority to inquire into the management of the business of all common carriers subject to the provisions of this act, and shall keep itself informed as to the manner and method in which the same is conducted, and shall have the right to obtain from such common carriers full and complete information necessary to enable the commission to perform the duties and carry out the objects for which it was created;

and for the purposes of this act the commission shall have power to require, by subpoena, the attendance and testimony of witnesses and the production of all books, papers, tariffs, contracts, agreements, and documents relating to any matter under investigation, and in case of disobedience to a subpoena, the commission, or any party to a proceeding before the commission, may invoke the aid of any court of the United States in requiring the attendance and testimony of witnesses and the production of books, papers, and documents under the provisions of this section.

"And any of the circuit courts of the United States within the jurisdiction of which such inquiry is carried on, may, in case of contumacy or refusal to obey a subpoena issued to any common carrier subject to the provisions of this act, or other person, issue an order requiring such common carrier or other person to appear before said commission (and produce books and papers if so ordered) and give evidence touching the matter in question; and any failure to obey such order of the court may be punished by such court as a contempt thereof. The claim that any such testimony or evidence may tend to criminate the person giving such evidence shall not excuse such witness from testifying; but such evidence or testimony shall not be used against such person on the trial of any criminal proceeding."

SEC. 4. That section 14 of said act is hereby amended so as to read as follows:

"SEC. 14. That whenever an investigation shall be made by said commission, it shall be its duty to make a report in writing in respect thereto, which shall include the findings of fact upon which the conclusions of the commission are based, together with its recommendation as to what reparation, if any, should be made by the common carrier to any party or parties who may be found to have been injured; and such findings so made shall thereafter, in all judicial proceedings, be deemed *prima facie* evidence as to each and every fact found.

"All reports of investigations made by the commission shall be entered of record, and a copy thereof shall be furnished to the party who may have complained, and to any common carrier that may have been complained of.

"The commission may provide for the publication of its reports and decisions in such form and manner as may be best adapted for public information and use, and such authorized publications shall be competent evidence of the reports and decisions of the commission therein contained, in all courts of the United States, and of the several States, without any further proof or authentication thereof. The commission may also cause to be printed for early distribution its annual reports."

SEC. 5. That section 16 of said act is hereby amended so as to read as follows:

"SEC. 16. That whenever any common carrier, as defined in and subject to the provisions of this act, shall violate, or refuse or neglect to obey or perform any lawful order or requirement of the commission created by this act, not founded upon a controversy requiring a trial by jury, as provided by the seventh amendment to the Constitution of the United States, it shall be lawful for the commission or for any company or person interested in such order or requirement, to apply in a summary way, by petition, to the circuit court of the United States sitting in equity in the judicial district in which the common carrier complained of has its principal office, or in which the violation or disobedience of such order or requirement shall happen, alleging such violation or disobedience, as the case may be; and the said court shall have power to hear and determine the matter on such short notice to the common carrier complained of as the court shall deem reasonable; and such notice may be served on such common carrier, his or its officers, agents, or servants, in such manner as the court shall direct; and said court shall proceed to hear and determine the matter speedily as a court of equity, and without the formal pleadings and proceedings applica-

ble to ordinary suits in equity, but in such manner as to do justice in the premises; and to this end such court shall have power, if it think fit, to direct and prosecute in such mode and by such persons as it may appoint, all such inquiries as the court may think needful to enable it to form a just judgment in the matter of such petition; and on such hearing the findings of fact in the report of said commission shall be *prima facie* evidence of the matters therein stated; and if it be made to appear to such court on such hearing or on report of any such person or persons that the lawful order or requirement of said commission drawn in question has been violated or disobeyed, it shall be lawful for such court to issue a writ of injunction or other proper process, mandatory or otherwise, to restrain such common carrier from further continuing such violation or disobedience of such order or requirement of said commission and enjoining obedience to the same; and in case of any disobedience of any such writ of injunction or other proper process, mandatory or otherwise, it shall be lawful for such court to issue writs of attachment or any other process of said court incident or applicable to writs of injunction or other proper process, mandatory or otherwise, against such common carrier, and if a corporation against one or more of the directors, officers, or agents of the same, or against any owner, lessee, trustee, receiver, or other person failing to obey such writ of injunction or other proper process, mandatory or otherwise; and said court may, if it shall think fit, make an order directing such common carrier or other person so disobeying such writ of injunction or other proper process, mandatory or otherwise, to pay such sum of money, not exceeding for each carrier or person in default the sum of \$500 for every day, after a day to be named in the order, that such carrier or other person shall fail to obey such injunction or other proper process, mandatory or otherwise; and such moneys shall be payable as the court shall direct, either to the party complaining or into court, to abide the ultimate decision of the court, or into the Treasury; and payment thereof may, without prejudice to any other mode of recovering the same, be enforced by attachment or order in the nature of a writ of execution, in like manner as if the same had been recovered by a final decree *in personam* in such court. When the subject in dispute shall be of the value of \$2,000 or more, either party to such proceeding before said court may appeal to the Supreme Court of the United States, under the same regulations now provided by law in respect of security for such appeal; but such appeal shall not operate to stay or supersede the order of the court or the execution of any writ or process thereon; and such court may, in every such matter, order the payment of such costs and counsel fees as shall be deemed reasonable. Whenever any such petition shall be filed or presented by the commission, it shall be the duty of the district attorney, under the direction of the Attorney-General of the United States, to prosecute the same; and the costs and expenses of such prosecution shall be paid out of the appropriation for the expenses of the courts of the United States.

"If the matters involved in any such order or requirement of said commission are founded upon a controversy requiring a trial by jury, as provided by the seventh amendment to the Constitution of the United States, and any such common carrier shall violate or refuse or neglect to obey or perform the same, after notice given by said commission as provided in the fifteenth section of this act, it shall be lawful for any company or person interested in such order or requirement to apply in a summary way by petition to the circuit court of the United States sitting as a court of law in the judicial district in which the carrier complained of has its principal office, or in which the violation or disobedience of such order or requirement shall happen, alleging such violation or disobedience as the case may be; and said court shall by its order then fix a time and place for the trial of said cause, which shall not be less than

twenty nor more than forty days from the time said order is made, and it shall be the duty of the marshal of the district in which said proceeding is pending to forthwith serve a copy of said petition, and of said order, upon each of the defendants, and it shall be the duty of the defendants to file their answers to said petition within ten days after the service of the same upon them as aforesaid. At the trial the findings of fact of said commission as set forth in its report shall be *prima facie* evidence of the matters therein stated, and if either party shall demand a jury or shall omit to waive a jury, the court shall, by its order, direct the marshal forthwith to summon a jury to try the cause; but if all the parties shall waive a jury in writing, then the court shall try the issues in said cause and render its judgment thereon. If the subject in dispute shall be of the value of \$2,000 or more, either party may appeal to the Supreme Court of the United States under the same regulations now provided by law in respect to security for such appeal; but such appeal must be taken within twenty days from the day of the rendition of the judgment of said circuit court. If the judgment of the circuit court shall be in favor of the party complaining, he or they shall be entitled to recover a reasonable counsel or attorney's fee, to be fixed by the court, which shall be collected as part of the costs in the case. For the purposes of this act, excepting its penal provisions, the circuit courts of the United States shall be deemed to be always in session."

SEC. 6. That section 17 of said act is hereby amended so as to read as follows:

"SEC. 17. That the commission may conduct its proceedings in such manner as will best conduce to the proper dispatch of business and to the ends of justice. A majority of the commission shall constitute a quorum for the transaction of business, but no commissioner shall participate in any hearing or proceeding in which he has any pecuniary interest. Said commission may, from time to time, make or amend such general rules or orders as may be requisite for the order and regulation of proceedings before it, including forms of notices and the service thereof, which shall conform, as nearly as may be, to those in use in the courts of the United States. Any party may appear before said commission and be heard, in person or by attorney. Every vote and official act of the commission shall be entered of record, and its proceedings shall be public upon the request of either party interested. Said commission shall have an official seal, which shall be judicially noticed. Either of the members of the commission may administer oaths and affirmations and sign subpoenas."

SEC. 7. That section 18 of said act is hereby amended so as to read as follows:

"SEC. 18. That each commissioner shall receive an annual salary of \$7,500, payable in the same manner as the judges of the courts of the United States. The commission shall appoint a secretary, who shall receive an annual salary of \$3,500, payable in like manner. The commission shall have authority to employ and fix the compensation of such other employes as it may find necessary to the proper performance of its duties. Until otherwise provided by law, the commission may hire suitable offices for its use, and shall have authority to procure all necessary office supplies. Witnesses summoned before the commission shall be paid the same fees and mileage that are paid to witnesses in the courts of the United States.

"All of the expenses of the commission, including all necessary expenses for transportation incurred by the commissioners, or by their employes under their orders, in making any investigation, or upon official business in any other places than in the city of Washington, shall be allowed and paid on the presentation of itemized vouchers therefor approved by the chairman of the commission."

SEC. 8. That section 21 of said act is hereby amended so as to read as follows:

"SEC. 21. That the commission shall, on or before the 1st day of December in each year, make a report,

which shall be transmitted to Congress, and copies of which shall be distributed as are the other reports transmitted to Congress. This report shall contain such information and data collected by the commission as may be considered of value in the determination of questions connected with the regulation of commerce, together with such recommendations as to additional legislation relating thereto as the commission may deem necessary; and the names and compensation of the persons employed by said commission."

SEC. 9. That section 22 of said act is hereby amended so as to read as follows:

"Sec. 22. That nothing in this act shall prevent the carriage, storage, or handling of property free or at reduced rates for the United States, State, or municipal governments, or for charitable purposes, or to or from fairs and expositions for exhibition thereat, or the free carriage of destitute and homeless persons transported by charitable societies, and the necessary agents employed in such transportation, or the issuance of mileage, excursion, or commutation passenger tickets; nothing in this act shall be construed to prohibit any common carrier from giving reduced rates to ministers of religion, or to municipal governments for the transportation of indigent persons, or to inmates of the national homes or State homes for disabled volunteer soldiers under arrangements with the boards of managers of said homes; nothing in this act shall be construed to prevent railroads from giving free carriage to their own officers and employés, or to prevent the principal officers of any railroad company or companies from exchanging passes or tickets with other railroad companies for their officers and employés; and nothing in this act contained shall in any way abridge or alter the remedies now existing at common law or by statute, but the provisions of this act are in addition to such remedies: *Provided*, That no pending litigation shall in any way be affected by this act."

SEC. 10. That the circuit and district courts of the United States shall have jurisdiction upon the relation of any person or persons, firm, or corporation, alleging such violation by a common carrier, of any of the provisions of the act to which this is a supplement and all acts amendatory thereof, as prevents the relator from having interstate traffic moved by said common carrier at the same rates as are charged, or upon terms or conditions as favorable as those given by said common carrier for like traffic under similar conditions to any other shipper, to issue a writ or writs of mandamus against such common carrier, commanding such common carrier to move and transport the traffic, or to furnish cars or other facilities for transportation for the party applying for the writ: *Provided*, That if any question of fact as to the proper compensation to the common carrier for the service to be enforced by the writ is raised by the pleadings, the writ of peremptory mandamus may issue, notwithstanding such question of fact is undetermined, upon such terms as to security, payment of money into the court, or otherwise, as the court may think proper, pending the determination of the question of fact: *Provided*, That the remedy hereby given by writ of mandamus shall be cumulative, and shall not be held to exclude or interfere with other remedies provided by this act or the act to which it is a supplement.

The bill was reported in the House on Sept. 12, 1888, and passed on Sept. 13, after amendment. The first two amendments were formal, referring to the posting of schedules in "two public and conspicuous places." The following amendments were also adopted:

To amend section 2 by inserting after the word "weighing" the words "false representation of the contents of the package."

To amend section 2 of an act entitled "An act to regulate commerce," approved Feb. 4, 1886, by striking out wherever they occur in said section the words

"under substantially similar circumstances and conditions."

To amend section 3 of same act by striking out wherever they occur in said section the words "undue and unreasonable."

To amend section 4 of same act by striking out of said section all after the word "distance" where it occurs before the word "Provided."

To amend an act entitled "An Act to regulate commerce," approved Feb. 4, 1887, by adding the following section:

"That in all civil actions and proceedings of whatever nature arising under an act entitled 'An act to regulate commerce,' approved Feb. 4, 1887, and under all acts amendatory thereof concurrent jurisdiction with United States courts is hereby conferred upon State courts of competent jurisdiction."

To be added after the word "created," in line 10 of section 3 of this act:

"And said commission is hereby authorized and required to prescribe for the use and guidance of said common carriers in making their schedules of rates and charges for transportation of persons and property one uniform classification, and shall transmit copies thereof to said common carriers on or before the first Monday in January, 1889, and thereafter the failure or refusal of any such common carrier to observe said classification in making schedules of rates shall be an unlawful act, and all rates and charges not in conformity with said classification shall be deemed and be unreasonable rates and charges.

That the following section be added to the said act of 1887: "That the commission is hereby authorized, empowered, and required to execute and enforce the provisions of this act, and upon the request of said commission the Attorney-General of the United States shall institute and prosecute all necessary proceedings in the proper court for the enforcement of this act and for the punishment of all violations thereof."

Add to the end of section 1, the following:

"*Provided, however*, That it shall be unlawful for any common carrier subject to the provisions of this act to carry refined oils and other petroleum products, cotton-seed oil, and turpentine for any shipper, in tank or cylinder cars, who shall own, lease, or control the same in any manner, except upon the condition that said carrier shall charge the same rate for the transportation of said products in wooden packages or barrels, in car-load lots, as in said tank or cylinder cars, the said tank and cylinder cars and said wooden packages and barrels being carried free in each case."

To insert in the original section 22 the words "or inmates of soldiers' and sailors' orphans' homes."

The Senate non-concurred in the House amendments; a conference committee was appointed, and at the second session of the Congress, Feb. 5, 1889, the following report was submitted:

The committee of conference, on the disagreeing votes of the two Houses on the amendments of the House to the bill (S. 2,851) to amend an act entitled "An act to regulate commerce," approved Feb. 4, 1887, having met, after full and free conference have agreed to recommend and do recommend to their respective Houses as follows:

That the House recede from its amendment numbered 8.

That the Senate recede from its disagreement to the amendments of the House numbered 1, 2, and 4, and agree to the same.

That the Senate recede from its disagreement to the amendment of the House numbered 5, and agree to the same with an amendment as follows: In lieu of the matter proposed to be inserted by said amendment insert the following:

"And the commission is hereby authorized and required to execute and enforce the provisions of this act; and, upon the request of the commission, it shall be the duty of any district attorney of the United States to whom the commission may apply to insti-

tute in the proper court and to prosecute, under the direction of the Attorney-General of the United States, all necessary proceedings for the enforcement of the provisions of this act, and for the punishment of all violations thereof; and the costs and expenses of such prosecution shall be paid out of the appropriation for the expenses of the courts of the United States."

And the House agree to the same.

That the Senate recede from its disagreement to the amendment of the House numbered 6, and agree to the same with an amendment as follows: In lieu of the matter proposed to be inserted by said amendment insert the following:

"And of soldiers' and sailors' orphans' homes, including those about to enter and those returning home after discharge."

And the House agree to the same.

That as to the amendments numbered 3 and 7 the committee of conference are unable to agree.

The disagreement was to the amendment relating to the transportation of oil in barrels and tank cars and the amendment conferring concurrent jurisdiction on State courts. A second conference committee was appointed, the conferees on the part of the House receded from the position of insisting upon these amendments, and the conference report was presented March 2 and agreed to by the House, as the railroad commission was urgent for the main part of the measure, and there was no time to spend in further discussion. The President approved of the bill the same day.

Appeal in Capital Cases.—At the first session of the Congress a bill was passed to provide for a writ of error in capital cases, and for other purposes, but through pressure for time it did not receive the approval of the President. On Jan. 7, 1889, the Senate passed the measure again, as follows:

Be it enacted, etc., That there shall be, and is hereby, established a circuit court of the United States in and for the western district of Arkansas, for the northern district of Mississippi, and for the western district of South Carolina, respectively, as the said districts are now constituted by law. And terms of said circuit courts, respectively, shall be held at the times and places now provided by law for the holding of the district courts in said districts respectively, and terms of the circuit court shall be held also at Helena, in the eastern district of Arkansas, at the same times the district court is now required by law to be held; and also at the times and places in West Virginia, where the district court is now provided by law to be held.

SEC. 2. That said circuit courts, respectively, shall have and exercise, within their respective districts, the same original and appellate jurisdiction as is or may be conferred by law upon the other circuit courts of the United States; and all suits, causes, and proceedings now pending in the said several respective district courts, and also in the district court of the district of West Virginia, and also in the district court of the eastern district of Arkansas, held at Helena, in and concerning which the said district courts exercise circuit-court powers, shall be transferred to and belong to the jurisdiction of said circuit courts, respectively, and shall be proceeded with accordingly.

SEC. 3. That there shall be appointed for each of said circuit courts in this act mentioned, by the circuit-court judge of the circuit in which said districts are respectively embraced, a clerk, who shall take the oath and give the bond required by law for clerks of circuit courts, who shall discharge all the duties and be entitled to all the fees and emoluments prescribed by general law. And the marshals of the United States in and for said respective districts shall act as marshals of said circuit courts, and the district attor-

neys of the United States in and for said respective districts shall discharge the duties of district attorneys in said circuit courts. Hereafter all appointments of clerks of circuit courts of the United States shall be made by the circuit judges of the respective circuits in which such circuit courts are or may be hereafter established; and all provisions of law inconsistent herewith are hereby repealed.

SEC. 4. That said circuit courts, respectively, shall have power to make such orders and directions as shall be proper for the transfer from said district courts of all causes, proceedings, matters, records, files, and papers as by force of this act should belong to the said circuit courts.

SEC. 5. That the provisions of the act entitled "An act to amend sections 533, 553, 571, and 572 of the Revised Statutes of the United States, relating to courts in Arkansas and other States," approved Jan. 31, 1877, conferring upon the district courts named therein circuit-court powers; and section 571 of the Revised Statutes of the United States, as amended by said last-mentioned act, and all provisions of law inconsistent with any of the provisions of this act, be, and the same are hereby, repealed.

SEC. 6. That hereafter in all cases of conviction of crime the punishment of which provided by law is death, tried before any court of the United States, the final judgment of such court against the respondent shall, upon the application of the respondent, be re-examined, reversed, or affirmed by the Supreme Court of the United States upon a writ of error, under such rules and regulations as said court may prescribe. Every such writ of error shall be allowed as of right and without the requirement of any security for the prosecution of the same or for costs. Upon the allowance of every such writ of error, it shall be the duty of the clerk of the court to which the writ of error shall be directed to forthwith transmit to the clerk of the Supreme Court of the United States a certified transcript of the record in such case, and it shall be the duty of the clerk of the Supreme Court of the United States to receive, file, and docket the same. Every such writ of error shall during its pendency operate as a stay of proceedings upon the judgment in respect of which it is sued out. Any such writ of error may be filed and docketed in said Supreme Court at any time in a term held prior to the term named in the citation as well as at the time so named; and all such writs of error shall be advanced to a speedy hearing on motion of either party. When any such judgment shall be either reversed or affirmed the cause shall be remanded to the court from whence it came for further proceedings in accordance with the decision of the Supreme Court, and the court to which such cause is so remanded shall have power to cause such judgment of the Supreme Court to be carried into execution. No such writ of error shall be sued out or granted unless a petition therefor shall be filed with the clerk of the court in which the trial shall have been had during the same time or within such time, not exceeding sixty days next after the expiration of the term of the court which the trial shall have been had, as the court may for cause allow by order entered of record.

SEC. 7. That this act shall take effect and be in force from and after the 1st day of May, A. D. 1889.

The House passed the measure on Jan. 19, and it became a law without the approval of the President.

For the Protection of Girls.—At the first session of the Congress the House passed, and the Senate passed with amendments, a bill for the protection of girls in the District of Columbia under sixteen years of age. The House non-concurred in the Senate amendments, and a conference committee was appointed, which reported, Jan. 19, 1889, in favor of the following form of the measure:

That every person who shall carnally and unlawfully know any female under the age of sixteen years, or who shall be accessory to such carnal and unlawful knowledge before the fact in the District of Columbia, or other place except the Territories, over which the United States has exclusive jurisdiction, or on any vessel within the admiralty or maritime jurisdiction of the United States, and out of the jurisdiction of any State or Territory, shall be guilty of a felony, and when convicted thereof shall be punished by imprisonment at hard labor for the first offense for not more than fifteen years, and for each subsequent offense, for not more than thirty years.

The report was agreed to, and the President approved the measure, Feb. 9.

The Sawdust Game.—At the first session of the Congress the House passed a bill to punish pretended dealers in counterfeit money, and other fraudulent devices for using the United States mails. On Feb. 26, 1889, the Senate amended and passed the measure as follows:

That section 5480 of the Revised Statutes be, and the same is hereby, so amended as to read as follows:

"SEC. 5480. If any person having devised or intending to devise any scheme or artifice to defraud, or to sell, dispose of, loan, exchange, alter, give away, or distribute, supply, or furnish, or procure for the lawful use any counterfeit or spurious coin, bank notes, paper money, or any obligation or security of the United States or of any State, Territory, or municipality, company, corporation, or person, or anything represented to be or intimated or held out to be such counterfeit or spurious articles, or any scheme or artifice to obtain money by or through correspondence, by what is commonly called "the sawdust swindle" or "counterfeit money fraud," or by dealing or pretending to deal in what is commonly called "green articles," "green coin," "bills," "paper goods," "spurious Treasury notes," "United States goods," "green cigars," or any other names or terms intended to be understood as relating to such counterfeit or spurious article, to be effected by either opening or intending to open correspondence or communication with any other person, whether resident within or outside the United States, by means of the post-office establishment of the United States, or by inciting such other person or any person to open communication with the person so devising or intending, shall, in and for executing such scheme or artifice or attempting so to do, place or cause to be placed any letter, packet, writing, circular, pamphlet, or advertisement in any post-office, branch post-office, or street or hotel letter-box of the United States, to be sent or delivered by the said post-office establishment, or shall take or receive any such therefrom, such person so misusing the post-office establishment shall upon conviction, be punishable by a fine of not more than \$500 and by imprisonment for not more than eighteen months, or by both such punishments, at the discretion of the court. The indictment, information, or complaint may severally charge offenses to the number of three when committed within the same six calendar months; but the court thereupon shall give a single sentence, and shall proportion the punishment especially to the degree in which the abuse of the post-office establishment enters as an instrument into such fraudulent scheme and device."

SEC. 2. That any person who, in and for conducting, promoting, or carrying on, in any manner by means of the post-office establishment of the United States, any scheme or device mentioned in the preceding section, or any other unlawful business whatsoever, shall use or assume or request to be addressed by any fictitious, false, or assumed title, name, or address, or name other than his own proper name, or shall take or receive from any post-office of the United States any letter, postal card, or packet addressed to any such fictitious, false, or assumed title, name, or

address, or name other than his own lawful and proper name, shall, upon conviction, be punishable as provided in the first section of this act.

SEC. 3. That the Postmaster-General may, upon evidence satisfactory to him, that any person is using any fictitious, false, or assumed name, title, or address in conducting, promoting, or carrying on, or assisting therein, by means of the post-office establishment of the United States, any business scheme or device in violation of the provisions of this act, instruct any postmaster at any post-office at which such letters, cards, or packets, addressed to such fictitious, false, or assumed name or address arrive to notify the party claiming or receiving such letters, cards, or packets to appear at the post-office and be identified; and if the party so notified fail to appear and be identified, or if it shall satisfactorily appear that such letters, cards, or packets are addressed to a fictitious, false, or assumed name or address, such letters, postal cards, or packages shall be forwarded to the dead-letter office as fictitious matter.

SEC. 4. That all matter the deposit of which in the mails is by this act made punishable is hereby declared non-mailable; but nothing in this act shall be so construed as to authorize any person other than an employé of the dead-letter office, duly authorized thereto, to open any letter not addressed to himself.

SEC. 5. That whenever the Postmaster-General is satisfied that letters or packets sent in the mails are addressed to places not the residence or business address of the persons for whom they are intended, to enable such persons to escape identification, he may direct postmasters to deliver such letters only from the post-office upon identification of persons addressed.

The House non-concurred in the Senate amendments, but after a conference receded from its non-concurrence. The President approved the measure, March 2.

International Money-Orders.—Both Houses passed the following bill increasing the maximum amount of international money-orders.

Be it enacted, etc., That section 4028 of the Revised Statutes of the United States (second edition, 1878) be, and the same is hereby amended so as to read as follows:

"SEC. 4028. The Postmaster-General may conclude arrangements with the post departments of foreign governments with which postal conventions have been or may be concluded for the exchange, by means of postal orders, of small sums of money, not exceeding \$100 in amount, at such rates of exchange and compensation to postmasters, and under such rules and regulations as he may deem expedient; and the expenses of establishing and conducting such systems of exchange may be paid out of the proceeds of the money-order business."

SEC. 2. That this act shall take effect within six months from the date of its approval by the President.

The President approved the measure Feb. 1, 1889.

Appropriations.—Just previous to the final adjournment of the Congress, March 2, 1889, Mr. Randall, of Pennsylvania, submitted a summary of the various general appropriation bills passed during the second session of the Fiftieth Congress, which is presented in tabular form on the next page.

Summary.—The Fiftieth Congress began its first session on the first Monday of December, 1887, and did not finally adjourn until Oct. 20, 1888. The second session, beginning at the usual time, expired by limitation of law on March 4, 1889. There were introduced in the house 12,664 bills and 269 joint resolutions. There were introduced in the Senate 4,000 bills

TITLE.	Estimates, 1890.	REPORTED TO HOUSE.		PASSED HOUSE.		REPORTED TO SENATE.		PASSED SENATE.		LAW, 1889-'90.	LAW, 1888-'89.
		Date.	Amount.	Date.	Amount.	Date.	Amount.	Date.	Amount.	Amount.	Amount.
Agricultural	\$1,686,160 00	1889.		1889.		1889.		1889.		\$1,686,160 00	\$1,716,010 00
Army	24,970,658 24	Feb. 2	\$1,681,010 00	Feb. 8	\$1,681,010 00	Feb. 21	\$1,693,470 00	Feb. 22	\$1,701,470 00	\$1,689,770 00	24,471,300 00
		Jan. 25	24,466,615 73	Feb. 8	23,978,115 73	Feb. 22	24,057,615 73	Feb. 26	24,320,115 73	24,300,115 73	
Diplomatic and consular	1,947,565 00	1888.		1888.		1888.		1888.		1,980,025 00	1,428,465 00
		Dec. 20	1,427,025 00	Jan. 12	1,427,025 00	Jan. 25	2,050,325 00	Jan. 31	2,050,325 00		
District of Columbia *	5,949,585 61	Dec. 6	4,927,193 61	Dec. 10	4,943,193 61	Jan. 22	5,981,806 91	Jan. 25	6,296,139 91	5,687,406 91	5,046,410 82
Fortification	5,552,000 00	1889.		1889.		1889.		1889.		1,205,594 00	3,972,000 00
Indian	5,475,410 50	Jan. 2	890,000 00	Jan. 19	915,320 00	Feb. 8	1,136,094 00	Feb. 9	1,336,094 00	1,205,594 00	8,963,700 79
		Feb. 13	5,687,893 05	Feb. 27	7,878,361 07	Mar. 1	7,852,571 35	Mar. 2	8,027,524 78	8,035,724 78	
Legislative, etc.	21,087,485 25	1888.		1888.		1888.		1888.		20,840,585 81	20,758,178 07
		Dec. 14	20,502,245 81	Dec. 18	20,808,145 81	Feb. 4	20,864,405 81	Feb. 8	20,885,125 81		
Military Academy	1,026,776 69	Dec. 18	904,266 69	Jan. 12	904,266 69	Jan. 25	902,766 69	Jan. 25	902,766 69	902,766 69	315,043 81
Navy	26,767,277 74	1889.		1889.		1889.		1889.		21,692,510 27	19,942,885 85
		Jan. 21	19,909,010 27	Feb. 2	20,009,010 27	Feb. 8	22,855,574 98	Feb. 12	23,080,574 98		
Pension	31,750,700 00	1888.		1888.		1888.		1888.		81,758,200 00	81,758,700 00
		Dec. 7	81,757,500 00	Dec. 10	81,740,000 00	Jan. 25	81,758,200 00	Feb. 8	81,758,200 00		
Post-Office †	66,812,073 02	1888.		1888.		1888.		1888.		66,805,344 28	60,860,238 74
		Feb. 2	66,595,344 28	Feb. 21	66,595,344 28	Feb. 27	66,605,344 28	Feb. 29	66,700,344 28		
River and harbor	45,677,000 00	1888.		1888.		1888.		1888.		22,397,616 90	
		Dec. 12	11,906,850 00								
Sundry civil	28,574,448 46	1889.		1889.		1889.		1889.		25,277,341 65	26,320,804 84
		Jan. 8	22,852,996 47	Jan. 29	23,470,880 65	Feb. 18	26,137,881 65	Feb. 22	26,923,951 65		
Total	277,285,090 51		263,707,950 91		254,295,623 11		261,902,056 40		264,012,662 83	259,955,335 12	277,251,293 82
Deficiency, 1889 and prior years	\$20,000,000 00		14,568,281 77		14,728,954 81		17,670,290 24		18,659,652 84	16,423,360 60	19,563,883 26
		Feb. 12		Feb. 26		Mar. 1		Mar. 1			
Total	297,285,090 51		278,276,232 68		269,024,577 42		279,572,346 64		282,672,315 67	276,378,695 72	296,814,652 08
Miscellaneous	\$6,500,000 00								\$6,500,000 00	\$6,500,000 00	10,170,862 55
Total regular annual	303,785,090 51									281,878,695 72	306,955,544 63
Permanent annual	108,691,055 95									108,691,055 95	115,640,198 90
Grand total	412,476,146 46									390,569,751 67	422,626,343 53
Amount of estimated revenues for fiscal year 1890											377,000,000 00
Amount of estimated postal revenues for fiscal year 1890											62,508,658 12
Total estimated revenues for fiscal year 1890											439,508,658 12

* Fifty per cent. of the amounts appropriated for the District of Columbia is paid by the United States. The amount for the water department (estimated for 1890 at \$237,125.64) is paid out of the revenues of that department.

† This amount includes \$2,585,798.62 for payment of judgment of Court of Claims in favor of the Choctaw nation.

‡ The appropriations for the postal service are paid out of the postal revenues (estimated for 1890 at \$62,508,658.12), and any deficiency in the revenue is provided for out of the Treasury of the United States.

§ This is the estimate submitted for rivers and harbors for 1890. "The amount that can be profitably expended," as reported by the chief of engineers, is \$32,012,250. (Book of Estimates, page 177.)

|| This sum is approximated.

¶ This is the aggregate amount of the four deficiency acts passed during the first session of the Fiftieth Congress.

and 145 joint resolutions. Of all these, 1,791 became laws. The most important measures of a general character have been noticed, and the public measures not here dealt with in detail have been mainly bills providing for public buildings, for bridges, and for granting the right of way to railroads, or other matters incidental to the routine business of the Government. About 832 House bills and 409 Senate bills that became laws were private. Among the important public measures that failed were the Mills tariff bill and the Senate substitute for it; the general land bill, and the general forfeiture bill; the bill to prevent the product of convict labor from being used in any Government department, or upon public buildings or public works; to authorize five civilized tribes to lease their lands; to regulate the internal-revenue laws; to authorize the issue of fractional silver certificates; to provide in certain cases for the regulation of railroads; to prevent the employment of alien labor upon public buildings and in the departments; to forfeit the Northern Pacific land grants; to provide for the revocation of the withdrawal of lands, made for the benefit of certain railroads; to empower the President to protect American fishermen and fishing vessels; to request the President to negotiate with Mexico for a boundary commission; to aid the States in education; to appoint an alcoholic commission; to grant the right of way for irrigation purposes; to provide for the inspection of meats; to regulate the classification and valuation of foreign merchandise; to increase the pension for total disability; to relieve soldiers and sailors who enlisted under assumed names during the war; to establish a national art commission; to make telegraph companies subject to regulation by the Interstate Commerce Commission; to reduce the rate of postage on seeds and bulbs; to prevent the introduction of contagious diseases from one State to another; to fund the Pacific Railroad debt to the Government; to admit the Territories of Utah, Idaho, New Mexico, and Wyoming; to promote commercial union with Canada; to authorize the President to open negotiations for the annexation of the Dominion; to grant woman suffrage; to repeal the civil-service law; to repeal all internal revenue laws; to lay a graduated income tax; to authorize free coinage of silver; to repeal the oleomargarine act; to repeal the arrears-of-pension limitation. Both the fisheries treaty and the extradition treaty negotiated with Great Britain were rejected by the Senate.

CONNECTICUT, one of the thirteen original States; ratified the national Constitution Jan. 9, 1788; area 4,990 square miles; population, according to the last decennial census (1880), 622,700; capital, Hartford.

Government.—The following were the State officers during the year: Governor, Morgan G. Bulkeley, Republican; Lieutenant-Governor, Samuel E. Merwin; Secretary of State, R. Jay Walsh; Treasurer, E. Stevens Henry; Comptroller, John B. Wright; Secretary of the State Board of Education, Charles D. Hine; Insurance Commissioner, Orsamus R. Fyler; Railroad Commissioners, George M. Woodruff, William H. Haywood, William O. Seymour; Chief Justice of the Supreme Court, John D. Park, who retired in April,

having reached the limit of age, seventy years, and was succeeded by Ex-Governor Charles B. Andrews by appointment of the Governor; Associate Justices, Elisha Carpenter, Dwight Loomis, Sidney B. Beardsley (who resigned on Oct. 31) succeeded by Edward W. Seymour, Dwight W. Pardee, who will retire by reason of age in February, 1890, and will be succeeded by David Torrance.

Population.—The estimated population of the State, based upon returns from the different towns, for 1887, was 727,276. For 1888 an estimate, based upon similar returns, places the population at 758,662.

Finances.—The annual report of the Treasurer for the year ending June 30, 1889, shows a balance of \$751,699.03 on hand at the beginning of the year; the total receipts amounted to \$1,923,894.16, and the total payments to \$2,145,220.94, leaving a balance on June 30, 1889, of \$530,372.25. The expenditures include \$500,000 for State bonds redeemed, in consequence of which the bonded debt has been reduced to \$3,740,200.

Under a new law authorizing deposits of surplus funds, the Treasurer has deposited such funds with various institutions, so as to yield a rate of interest as large as that paid on the bonded debt. The aggregate receipts under the new law for taxing express, telegraph, and telephone companies will be about the same as under the previous law.

The number of bonds, notes, etc., stamped and registered under the provisions of the investment tax law (which did not take effect till Aug. 1) for the two months ending Oct. 1, 1889, was 36,843; amount, \$28,496,959.24; taxes received, \$110,270.99. The tax-rate for each of the years 1889 and 1890 is one mill.

Legislative Session.—The second biennial session of the Legislature began on Jan. 9, and was not ended till June 22. Its first act after organization was the choice of State officers for the ensuing year, there being no choice by the people in the November election. For Governor the vote in joint session stood 159 for Morgan G. Bulkeley (Republican) to 95 for Luzon B. Morris (Democrat). The remaining candidates on the Republican ticket were elected by practically the same vote. The proposed prohibitory amendment to the State Constitution, passed by the Legislature of 1887, was again adopted, and provision was made for its submission to the people at an election in October. To aid in the enforcement of the existing license laws, an act known as the "anti-screen law" was passed, declaring that "no premises where intoxicating liquors are sold shall, during the time when such sales are prohibited by law, be so obstructed by any curtain, screen, or other device as to prevent a full and unobstructed view of the bar and interior of such premises from the main entrance, or the street or sidewalk adjacent thereto." All persons who disobey the law, except licensed druggists, are subject to a fine of not over \$50 or imprisonment or both. Another act requires that all persons convicted of intoxication shall be put under oath to tell where they obtained the liquor. A refusal to answer shall be considered contempt of court, and shall subject the offender to imprisonment from ten to thirty

days. In towns that have voted against license, all buildings or other places used by societies or clubs, where intoxicating liquors are sold or dispensed shall be deemed common nuisances, for which the members are liable.

The following changes were made in the school laws: The beginning of the school year is changed from Sept. 1 to July 15; the enumeration of children of school age is hereafter to be made in October, instead of January, the returns to be made on or before Oct. 20: schools are to be maintained 36 weeks in each year in every district when the number of enumerated children is 50 or more, instead of 100, and 30 weeks in all other districts, instead of 30 and 24, according to enumeration. Small school districts may be united, at the discretion of the board of visitors.

A change in the ballot law was one of the most important acts of the session. A bill embracing the chief features of the Australian law (see "Annual Cyclopædia" for 1887, page 246), similar to the Massachusetts act, passed both Houses, but was vetoed by the Governor. A new bill, modifying the former one to meet the Governor's objections, was then passed and received his signature. The following are its leading provisions, which are applicable to all regular town and city elections and to the elections held on the Tuesday after the first Monday of November: All ballots shall be printed on plain white paper, which is to be furnished by the Secretary of State. It shall be of uniform size, color, quality, and thickness for each ballot of the same class, to be determined by the Secretary. This blank ballot paper, with the words "official ballot" printed on the back of each sheet, shall be issued to any person that applies and pays for it, accompanied with directions as to the kind of type to be used. The names of the party, the candidates, and the offices may be printed thereon in black ink, and nothing more. Votes cast for Presidential Electors, Governor, Lieutenant-Governor, Secretary, Treasurer, Comptroller, Representative in Congress, Senator, Sheriff, and Judge of Probate shall be on one ballot. Votes cast for Representatives shall be on one ballot. Votes cast for city officers shall be on one ballot. Votes cast for town officers shall be on one ballot. Votes for justices of the peace shall be on one ballot. The Secretary shall also furnish the town clerks, at least five days before any election, with envelopes of uniform color and size, self-sealing, and stamped with the seal of the State. The selectmen of each town shall provide a suitable room or rooms or booths for holding all elections under the provisions of this act. The interior of the rooms or booths shall be secure from outside observation, and said rooms or booths shall be located in or connected with the room where the ballot-box shall be stationed. The number of rooms or booths shall be one for each one hundred and fifty registered voters. The ballot-box shall be open for the reception of votes in a room which shall be so arranged that access to it shall be from the room or rooms, booth or booths, in which the electors shall prepare their ballots and place them in envelopes. The exit from such room shall be into some other room or hall or into a public street or square. No person shall be allowed to remain in the room or inclosure where the ballot-box is

placed, except for the purpose of depositing the envelope that contains his ballots, unless he be a duly appointed moderator, box-tender, registrar, or challenger. No person except those authorized to remain in the inclosure where the ballot-box is placed shall be permitted to enter the same, except for the purpose of depositing a ballot. No person shall give or offer to any elector, in any room or booth hereinbefore provided, any ballot or envelope to be used in voting. The selectmen shall provide at the entrance of the voting-place an envelope booth and a ballot booth, each in charge of two persons. No official envelope shall be delivered to the voter, or counted as a vote, unless indorsed with the names or initials of both of the envelope clerks. The voter shall enter a room or booth, place in the envelope the ballots containing the names of the persons for whom he wishes to vote, and securely seal the envelope before entering the room or inclosure of the ballot-box. The registrars of each town shall designate and appoint two persons to serve during the hours the polls shall be open, who shall have charge of the rooms or booths. But one elector at a time shall be permitted to enter the same room or booth to prepare his ballot and enclose it in an envelope, and no elector shall remain in the room or booth while preparing his ballot more than three minutes. No person shall peddle or offer any ballot to another person within one hundred feet of any polling-place on the day of election. The voter may make erasures or paste other names upon his ballot, as before. A penalty is imposed for counterfeiting the blank ballots or official envelopes, and for violating any provision of the act.

Important changes were made in the tax laws. The gross-earnings tax on telegraph, telephone, and express companies, being considered unconstitutional so far as it relates to earnings from interstate traffic, was abandoned, except in case of express companies, as to which it was modified so as to apply only to gross earnings on traffic between points wholly within the State, and the rate was increased to 5 per cent. of such earnings. Any such company may pay the State \$10,000 annually in lieu of such tax. Telegraph and telephone companies, instead of the former tax, are required to pay twenty-five cents annually upon each mile of line owned, leased, or operated by them within the State, and telephone companies must further pay a tax of seventy cents upon each telephone transmitter furnished or rented to any one by them. It was also provided that a new tax should be levied upon collateral inheritances, being 5 per cent. of all sums in excess of \$1,000, which sum is exempt. Investment companies were added to the list of corporations, including banks, etc., whose capital stock is liable to taxation. Another radical change in the law provides that any person may bring to the State Treasurer any bond, note, or other chose in action, and pay a tax of one per cent. on its face for any number of years, and for such time as payment is made it shall be exempt from all taxation whatever. The Treasurer is required to register and stamp the securities so presented. In consequence of this enactment, the tax rate on property for each of the years 1889 and 1890 was reduced to one mill, and if the receipts from other sources should be suffi-

cient for the needs of the State, the Treasurer was authorized to suspend the collection of the tax for 1890 till after the next General Assembly should take action in the premises. The Treasurer was authorized to deposit on interest surplus funds of the treasury in any national or State banks or investment companies in the State, and was empowered to borrow not more than \$300,000 temporarily, in case of necessity.

An amendment to the State Constitution was proposed for the first time, increasing the salary of members of the Legislature from \$300 to \$500, and providing that the State may furnish conveyance for members to and from the sessions, instead of allowing them mileage, as at present. The following law is also noteworthy:

In every public department and upon all public works of this State, honorably discharged Union soldiers and sailors shall be preferred for appointment and employment. Age, loss of limb, or other physical impairment which does not in fact incapacitate, shall not be deemed to disqualify them, provided they possess the other requisite qualifications.

The sale, gift, or delivery of tobacco in any form to minors under sixteen years is forbidden, and no person under that age is allowed to smoke or use tobacco in a public street or place.

A second State normal school was established at Willimantic, \$75,000 being appropriated for buildings and \$20,000, for support for two years. The sum of \$25,000 was appropriated to enlarge the present normal school at New Britain, and a new law for the government of both schools was adopted. The following regular appropriations were made for two years: State House and grounds, \$62,000; State Normal School at New Britain for support, \$34,000; for State paupers, \$14,000; to each of the hospitals at New Haven, Hartford, and Bridgeport, \$10,000; Industrial School for Girls, \$71,000; for sick, wounded, and insane soldiers, \$120; for support of paupers and indigent patients at State Hospital for Insane, \$215,000; State Reform School, for repairs, \$10,000, for support, \$117,000; for deficit in earnings of State Prison, \$11,200; for common schools, \$470,000. The total amount appropriated was about \$3,680,000. Other acts of the session are as follow:

Providing for the attachment in civil actions of the fixtures of telegraph, telephone, or electric-light or power companies in the same manner as real estate, by lodging with the Secretary of State a certificate of such attachment.

Securing minority representation in the election of the following named town officers: Assessors, members of the board of relief, selectmen, constables, grand jurors, and justices of the peace, by providing that, when an even number of officials for any of such offices is to be chosen, each voter shall vote for only one half of them; if the number be odd, he shall vote only for a bare majority of the members.

Establishing the first Monday in September as a legal holiday, to be known as Labor Day.

Providing that all general laws, unless therein specially provided, shall take effect on July 1 next following the adjournment of the General Assembly, and all special laws from the day of their approval.

Providing a penalty for tapping telegraph and telephone wires and listening to messages thereon transmitted.

Making it a misdemeanor, punishable by fine or imprisonment or both, for any person driving upon or against another in the public highway to drive or go away from the place of accident without rendering as-

sistance or to refuse to give his name or residence or to give a false name or residence for the purpose of evading responsibility.

Imposing a fine of not more than fifty dollars upon any person who shall lead or drive a bear upon any street or highway.

Defining various frauds in the manufacture and sale of vinegar, providing punishment for the same, and directing the State dairy commissioner to enforce the act.

Providing for the appointment by the probate court of a trustee of the estate of any person who has disappeared or is missing, and who can not be found after diligent search.

Providing for the incorporation of Christian churches.

Providing that the owner of domestic fowls trespassing upon the premises of another person shall be liable for all damage done by such fowls.

Providing that no person who receives a valuable consideration for a contract made on Sunday shall defend any action upon such contract on the ground that it was so made until he restore such consideration.

Allowing any person aggrieved by the neglect of any railroad company or companies to make connections, to have a hearing before the railroad commissioners, who shall make such order in the matter as they find reasonable.

Prohibiting discrimination in life-insurance contracts.

Providing that damages in a defaulted action of tort shall be assessed by a jury.

Prescribing a new procedure, to be had before the judge of probate in order to secure the commitment of a person to any insane asylum.

Allowing an appeal to the Superior Court from the decision of the judge of probate committing children to the State Reform School, the Industrial School for Girls, or homes for dependent and neglected children.

Directing each board of county commissioners to appoint a game warden for the county, whose duty shall be to enforce the game laws; also a fish warden to enforce the fishing laws.

Further regulating the sale of liquor by druggists upon prescription of a regular physician.

Creating a new board of shell-fish commissioners.

Imposing a tax on any authorized increase of capital stock of corporations having authority to do their principal business outside of the State.

Limiting the power of railroad companies to guarantee the bonds or dividends on stock of any other railroad corporation.

Providing that the fiscal year for all departments of the State government shall end on Sept. 30 instead of June 30.

Providing that cemeteries shall not hereafter be located near ice ponds.

Validating certain omissions and irregularities in the assessment and collection of taxes, in the acts of justices of the peace and notaries, in the sale of land by order of court, in conveyance by married women, and in certain other cases.

Providing that all public acts of this General Assembly shall take effect on Aug. 1, 1889.

Incorporating the city of Rockville and the city of Danbury.

Providing for a contour topographical survey and map of the State, to be made in co-operation with the United States Geological Survey, and authorizing the expenditure of not more than \$25,000 therefor.

Providing that when any soldier, sailor, or marine, admitted to any public institution, has a wife or children under sixteen years, who are without adequate support, the selectmen may be directed to support them outside the almshouse, expending not more than two dollars a week for each person, which sum shall be reimbursed them by the State.

Prohibiting any railroad company from charging for detention of cars in loading or unloading, or from collecting storage for any time less than two days, or

from having a lien for freight or advances, unless it shall deliver to the consignee, at his request, a copy of the bill for such charges and advances.

Providing that no license shall be granted to sell liquor in any building used also as a dwelling or lodging-house, unless access to the part where liquor is sold from the other part is effectually cut off.

Education.—For the school year 1887-'88 the State Superintendent reports the following statistics concerning public schools: Total number of children of school age in the State, 154,932; number enrolled in public schools, 126,055; average attendance for the year, 81,098; number of male teachers employed, 493; female teachers, 2,783; schools taught, 1,624; school-houses in the State, 1,660; value of school property, \$6,063,269.16; average length of school year, 179.08 days; permanent school fund held by the State, \$2,019,572.40; amount expended by the State for public schools, \$348,597; total amount expended by State and local authorities for public schools, \$1,813,823.04. Of the amount expended by the State, \$232,398 was derived from State taxes and \$116,199 from income of the permanent school fund. The principal of this fund on June 30, 1888, amounted to \$2,019,572.40, and on June 30 of this year to \$2,023,753.83, the latter sum being invested as follows: Bonds and mortgages in Connecticut, Massachusetts, Ohio, and Indiana, \$1,690,194.33; real estate, \$104,033.70; national bank stock, \$175,847.61; cash, \$53,678.19. Within recent years the fund has been gradually impaired by unfortunate investments, and at the same time the school population has been steadily increasing. As a result, the annual apportionment of about seventy-five cents for each child of school age from the income of the fund, will soon be impossible, unless its former condition is more than restored. Its maximum limit was reached in 1848, when it amounted to \$2,077,641.19. The Legislature this year appropriated \$17,801.87 toward supplying the deficiency, but took no further action. The revenue from the fund applied to schools for 1888-'89 was \$117,932.25.

The school building at New Britain, finished in 1883, and intended for 150 pupils, already fails to furnish accommodations equal to the demands upon it. There were in attendance at the beginning of the year 265 pupils, and all available room is now in use. The demand for teachers properly trained is constantly increasing. Of the 218 who have been graduated since 1883, 204 are employed in the schools of this State. The Legislature this year provided for the enlargement of this school and for the establishment of another at Willimantic.

State Institutions.—At the Connecticut School for Imbeciles the number of pupils during the year ending Oct. 1, 1888, was 142, and there remained in the school at that date 128. Of these, 102 were beneficiaries of the State. The amount received from the State for their support during 1887-'88 was \$11,006.55.

The Soldiers' Hospital board reports the following sums paid by the State in aid of veterans for the year ending June 30, 1888: To the various State Hospitals, \$7,740.27; to the Soldiers' Home, \$24,999.97; for insane soldiers, \$3,946.06. On June 30, 1888, the number in the home was 124; in the hospitals, 21; in the Insane Hospital, 16.

The utmost capacity of the home, when all improvements are made, will be 225 inmates. The number of inmates has varied from 110 to 175, being larger in winter than in summer.

The State Industrial School for Girls was organized in 1870. The number of pupils received up to June 30, 1886, was 789. At that date there were 218; 51 pupils were received during the year succeeding, and there remained at its close 212. During the year ending June 30, 1888, 66 pupils were received, and there remained in the school at that date 215. The total expenditures of the school for the year ending June 30, 1887, were \$50,015.44, of which the State paid \$38,030.78; for the year ending June 30, 1888, they were \$56,335.34, of which the State paid \$45,094.37. The making of boxes by the pupils brings an annual revenue of about \$10,000 to the school.

The annual report of the State Reform School at Meriden dwells at some length on the "cottage system," which is now regarded as a most useful feature. Only about 150 of the 425 boys in the institution are now cared for in the congregate department in the main building, and the superintendent looks forward to the ultimate removal of all the boys to the cottages. At present the chief industry at the school is the caning of chairs. The chair shop earned over \$6,000 last year, but this paid only about 6 per cent. of the expense of maintaining the school.

The State Prison at Wethersfield contained in October, 1889, about 325 convicts, of whom 40 were life prisoners. The Legislature appropriated \$25,000 for the construction of two workshops at the institution.

Railroads.—The railroads of the State are largely concentrated, either by ownership or long lease, in the New York, New Haven and Hartford and New York and New England companies. They represent an aggregate capital stock of \$63,213,608.34 and a funded and other indebtedness of \$36,521,007.02. The number of passengers transported during 1888 was 22,972,666, and the tons of freight carried 7,729,549. Only a few miles of new road were constructed during that year. The number of grade crossings ordered to be changed by the railroad commissioners up to October, 1888, amounted to 61. Of the estimated \$500,000 which these changes involve the apportionment to towns amount to but \$49,195; while the railroads pay \$394,433 of it.

The commissioners estimate the total cost of abolishing all the grade crossings in the State at \$20,638,627, of which half will fall upon the New York, New Haven and Hartford company. The Legislature this year made the following regulations regarding removals: Every railroad shall remove, or apply to the railroad commissioners for the removal, each year of at least one grade crossing for every 60 miles of its road, such crossings to be those considered most dangerous. When any railroad applies for the removal, the commissioners shall assess all the cost thereof upon the company; but if town or city authorities make the application, not more than one fourth of the cost thereof shall be paid by the town or city, if the street in question was laid out before the railroad was built; if after, not more than half shall be paid by the town or city. The commissioners, after a hearing, may

order crossings abolished, without waiting for some one to present a petition therefor, provided that they shall not order in any year the removal of more than one crossing on any one railroad. In such cases, one fourth of the expense shall be paid by the State, and the remainder by the railroad company.

Banks.—The report of the bank commissioners for 1888 shows that there were 85 savings banks in the State, the same number as in 1887. Their total assets amount to \$111,816,976.58, an increase over 1887 of \$3,920,063.84. Their liabilities show a total surplus of \$3,689,953.25, an increase of \$175,181.24. The total number of depositors is 287,776, an increase of 9,361. The total amount of deposits is \$105,850,078.95, an increase of \$3,660,144.23. There are 8 State banks, the same number as in 1887. Their assets amount to \$7,116,622.74; their surplus, \$220,000; and individual deposits, \$3,819,658.03. There are 8 trust companies, with assets of \$4,799,916, and a total surplus of \$227,833. There are 56 investment or farm loan companies in the State, with a total capital of \$12,685,510. The liability for debenture bonds issued is a little over \$16,000,000—and the debenture bonds amount to \$22,799,719.

Militia.—The annual report of the Adjutant-General shows that the expense of the Connecticut National Guard for 1888 was 108,426.45. The expenses of the funerals of 139 poor soldiers were paid, and 188 headstones were erected. The force numbered at the November muster in 1888, 177 officers and 2,734 enlisted men; total 2,551, a gain over 1887 of 38, and a larger membership than for years, with the same number of companies. The entire Guard was newly uniformed during the year. The State now owns and occupies armories in Hartford, New Haven, New London, Bridgeport, Waterbury, Norwalk, and New Britain.

The State Constitution.—The provisions of the State Constitution requiring a majority vote for the election of State officers by the people, and giving all towns and cities equal representation in the Legislature, regardless of population, were the subject of much discussion after the election of 1888 and early in 1889. Although the Democratic candidates in that election received a considerable plurality over their Republican opponents, they failed to receive a majority over all candidates, and the choice therefore devolved upon the Legislature, in which, as the voters in the cities and large towns (where the Democratic party was strong) were, for the purpose of choosing members of the Legislature, almost disfranchised, the Republicans were easily victorious. When the present system was incorporated in the Constitution, the towns were nearly all alike in population. There were no large cities. Guilford was larger than Norwich and New London. Now the town of Union, with only 118 voters, has equal representation in the Legislature with New Haven, which has 17,800 voters. One voter in Union has equal power in choosing members of the Legislature with 151 voters in New Haven.

Prohibition.—In accordance with the legislative act of 1889 the question whether prohibition of the manufacture and sale of intoxicating liquors should be incorporated in the State Con-

stitution was submitted to the people at an election on Oct. 7. In the canvass that preceded, the greater part of the press of the State was opposed to the amendment, while the efforts made by friends of the measure were not spirited. An official count of the returns from all but three small towns showed 22,379 votes in favor of, and 49,974 against the amendment. At the same time, the various towns voted, under the existing local-option law, upon the question of license or no license for the year succeeding. Eighty-three towns voted for license, and 85 towns for no license. At a similar election in 1888, 79 towns adopted license, and 88 declared against.

COOK, ELIZA, an English poet, born in London in 1817; died at Beech House, Thornton Hill, Wimbledon, Sept. 23, 1889. Her father was a small tradesman, and the daughter, from her earliest youth, manifested great sympathy with the humbler people. When but a girl she lost the mother whose love she celebrates in the world-famous song of "The Old Arm-Chair," as well as in many other lyrics. The profits of her writings enabled her to purchase a house, where she made for herself what our countrywoman Frances Sargent Osgood describes as a charming home. Speaking of her personal appearance, Mrs. Osgood says: "Eliza Cook is just what her noble poetry would lead you to imagine her—a frank, brave, and warm-hearted girl, about twenty years of age, rather stout and sturdy looking,



ELIZA COOK.

with a face not handsome but very intelligent. Her hair is black and very luxuriant, her eyes gray and full of expression, and her mouth indescribably sweet." At this time she had already become a contributor to newspapers, and her poems seem to have found immediate recognition. She wrote regularly for such periodicals as the "New Monthly Magazine," "The Metropolitan," and "The Literary Gazette." In 1840, when she was but twenty-three years old, a volume of her poems was published in London, and republished in New York the following year, under the title of "Melaia, and other Poems." Many editions have been called for. In the preface to the edition of 1869 she says: "If I can still retain the sympathy and support of 'the people,' I shall be amply rewarded, and wish for

no more richly gilded laurel." In September, 1849, she began the publication of a journal, which bore her name. "Its object," she says in the first number, "is to give my feeble aid to the gigantic struggle for intellectual elevation now going on, and fling my energies and will into a cause where my heart will zealously animate my duty." She was not disappointed in this hope and aim. Dr. Allibone, writing in 1854, says: "'Eliza Cook's Journal' now stands among the first in point of popularity and circulation in the list of periodicals which have done so much for the mental culture of Great Britain and America." But in the same year she was compelled, from failing health, to relinquish this work in which so much of the liberal and philanthropic spirit that pervades her poems and explains their popularity had found expression. A fine specimen of that spirit, and of the natural and vigorous style in which she often expressed it, is found in her lines written upon Thomas Hood. Several years after his death she visited his grave in Kensal Green Cemetery, and found it entirely unmarked. Two of her stanzas will bear quoting:

What! There! without a single mark, without a
stone, without a line,
Does watchfire genius leave no spark to note its ashes
as divine?

Poor Hood! for whom a people wreathes the heart-
born flowers that never die;

Poor Hood! for whom a requiem breathes in every
human, toil-wrung sigh.

From 1854 Miss Cook passed her half-invalid days quietly in her own home. In 1860 she published "Jottings from my Journal," and in 1864 "New Echoes." In that year she was awarded a literary pension of £100 a year.

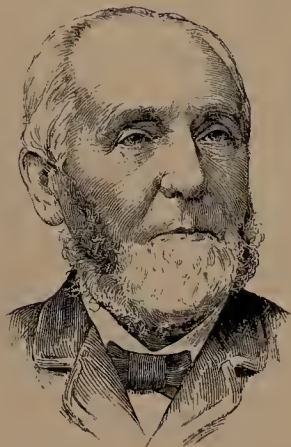
It is difficult for a reader of our day to do justice to Eliza Cook's poetry. The present might almost be called the age of suppressed sentiment in literature, and Americans especially are as fearful of showing the white handkerchief as the white feather. The love scenes, according to many critics, should be left wholly to the imagination of the novel-reader, and sentiment, to be admissible in poetry, must be veiled in the dialect of somebody so ignorant or so rude as to be able to speak in no other fashion. This state of things, no doubt, indicates true progress. We are more sensitive than formerly to the manner in which our heart-strings are played upon. An awkward touch sets them quivering in torture born of skillful training in the art of feeling. Eliza Cook's lyrics are nothing if not sentimental. "The Old Arm-Chair," "The Old Farm Gate," "I miss thee, my Mother," "O why does the White Man follow my Path?" "Old Songs," and many others, come at the call of those familiar with the rhymes of the recent past. "Old Songs" contains, no doubt, the true story of her work:

Old songs, old songs, ye fed, no doubt,
The flame that since has broken out.
For I would wander far and lone,
And sit upon the moss-wrapped stone,
Conning old songs, till some strange power
Breathed a wild magic on the hour,
Sweeping the pulse chords of my soul
As winds o'er sleeping waters roll.

This is the touch-stone by which to judge the poems of this good woman. They are songs

without the notes, and many of them found their completion only when set to music. They seem to be less distressing to delicate feeling than the half-disguised dialect rhymes of our day. They are simple, tender, and true; never great, but always heartfelt.

COOK, GEORGE HAMMELL, geologist, born in Hanover, N. J., Jan. 5, 1818; died in New Brunswick, N. J., Sept. 22, 1889. He was educated at



GEORGE HAMMELL COOK.

the village school, and then studied civil engineering by himself. In 1836 he was engaged in laying out the line for the Morris and Essex Railroad, after which he was employed in the survey of the Catskill and Canajoharie Railroad. He entered the Rensselaer Polytechnic Institute, and was graduated in 1839 with the degree of C. E. For two years he devoted himself to teaching, but in May, 1840, he returned to the institute, where he pursued higher studies, receiving the degrees of B. N. S. and M. S., and also acted as tutor. In October, 1840, he became adjunct professor, and in May, 1842, senior professor, with the chair of Geology and Civil Engineering. He then engaged in the manufacture of glass in Albany, N. Y., for four years, but in 1848 returned to teaching as Professor of Mathematics at the Albany Academy, of which institution he was made principal in 1851. Two years later he was called to the chair of Chemistry and Natural Science at Rutgers College, which, in 1878, became that of Analytical Chemistry, Geology, and Agriculture, and, in 1880, he relinquished the chemistry, but retained the other two branches until his death. In 1864, largely through his influence, the New Jersey State College for the Promotion of Agriculture and the Mechanic Arts was attached to Rutgers as a scientific department, and, in addition to teaching in both schools, he was made vice-president of the combined institutions. In 1854 he was appointed assistant geologist for the State of New Jersey, which place he held for three years, during which time he published three annual reports and "Geology of the County of Cape May" (Trenton, 1857). The office of State geologist was then allowed to lapse for several years, but in 1864 Prof. Cook presented a paper before the Legislature, setting forth the value of the surveys so ably that a bill was passed order-

ing its reorganization, and he was made State geologist. From that time he had the active management of the work, and, in addition to annual reports issued from 1864 till 1888, he published "Geology of New Jersey" (Newark, 1868), with an atlas of eight maps. A second volume had been completed, but, at the time of his death, it had not been published. Under his guidance various economical subjects were studied, among which was the consideration of the clays of New Jersey and their application to uses for pottery and other purposes, which proved of great interest to those engaged in such industries. He also had charge of a complete study of the flora of the State. The maps relating to geological formations, watersheds mineral deposits, etc., constructed under his supervision, are said, by competent judges, to be the best of all those published by the different States of the Union. This fact was corroborated by the leading officers of the United States Geological Survey, who united in expressing their admiration of them, and assured Prof. Cook that they would be used as models for such work. In 1886 he organized the New Jersey State Weather Service, and became its chief director. He was an active member of the Board of Water Commissioners of New Brunswick for more than fifteen years, during part of which time he was its president; he also served as a member of the State Board of Health. Prof. Cook was active in the formation of the New Jersey Board of Agriculture, and was its secretary in 1873-'79, with charge of the preparation of its annual reports. Subsequently he was a member of its executive committee. In 1852 he was sent to Europe by the State of New York to make studies that might be of value in developing the Onondaga salt deposits, and in 1878 he again went abroad as a delegate to the International Geological Congress in Paris. The degree of Ph. D. was conferred on him by the University of New York, and that of LL. D. by Union College. He was a member of the Royal Agricultural Society of Sweden and of the American Association for the Advancement of Science, of which he was vice-president in 1887. He was also a member of the American Philosophical Society, the Academy of Natural Sciences of Philadelphia, and the American Institute of Mining Engineers, and in 1887 was chosen to the National Academy of Sciences.

COREA, a kingdom of Asia, on a peninsula between China and Japan, between Asiatic Russia and the Eastern Sea, having a coast line of 1,700 miles, an area of 82,000 square miles, and a population of 10,528,937. Its name, Chō-sen, meaning "morning calm," was first given by the civilizer Ki-tsé, an ancestor of Confucius, B. C. 1122. The name Korai was in vogue from the tenth to the fourteenth century, and is still popularly used. In 1392, when the present dynasty was established, the ancient name was restored. The significance of the name Chō-sen is not derived from the characteristic trait of the Coreans, their love for natural scenery and beauty, but from the fact that Corea, as a pupil nation, has always looked to the favor of China as her sunshine and prosperity. Audience to envoys of tributary, vassal, or pupil nations is given at daybreak, and a favorable reception makes "morning calm." For ages Corea has been supposed to be merely a

Chinese vassal state, and almost an integral part of the Chinese Empire. Her status, so puzzling to Western ideas, and anomalous in our diplomacy, is that of a younger brother in the great family of nations governed by the philosophy and ethics of Confucius. China is the elder brother, *in loco parentis*, to all the surrounding nations in Asia that receive her almanac and coming, at her expense, to Peking, pay tokens of respect usually called "tribute." Neither acknowledged by Corea, nor expected by China, was the right of the Middle Kingdom to claim the territory of Corea as Chinese, nor to interfere in her domestic affairs. Of late years—especially since making treaties with Japan, the United States and European nations—Chō-sen has taken active steps in asserting her sovereignty and independence. Though her treaty with the Chinese is still designated by the latter as "commercial and trade regulations for the subjects of China and Korea," yet those with Japan and Western governments are on the basis of unchallenged sovereignty. Legations are established at Tokio and Washington. At the head of the latter is Pak Chung Yang, a noble of the second rank, Envoy Extraordinary and Minister Plenipotentiary. A minister of the same rank has been appointed to represent his sovereign to the five nations of Europe with which Corea has treaties—Great Britain, Germany, Russia, Italy, and France. The national flag has an oblong field, in the center of which are two comma-shaped symbols—red and black—representing the two universal principles of heaven and earth; and in each of the corners one of the Pak-wa or eight-diagrams, in which the learned men of Chinese Asia see the origin of all writing and the symbols of all physics and metaphysics. The same emblems are found on the coinage and postage stamps.

Education.—The basis of learning is the Chinese system of ethics, philosophy, and literature. But the Coreans have an alphabet—one of the most perfect in the world—invented by a native, of eleven vowels and fourteen consonants. The "great letters," or Chinese logo-grams, are used for serious literature, the "little letters," or Korean phonetic signs, for story-books and for the seal of the legation in Washington. The civil-service examinations, held nearly every year in Seoul, presided over by the King, and attended by 15,000 contestants from the eight provinces, are in the Chinese character, each essay being a mosaic of passages from, or allusions to the classics, and written on an enormous sheet of thick native paper. In the Royal College—now in its fourth year—and in the hospital and medical school (both of which are under American instructors), Western sciences and literature are taught, and at the examinations in June, 1889, the King presided. There are also English-language schools at the open ports. In military instruction, on Western principles, the sons of the nobility are trained by American army officers, and a body of 2,000 men, armed with breech-loading rifles and uniformed, form the nucleus of the Korean army, which is being reorganized on European models.

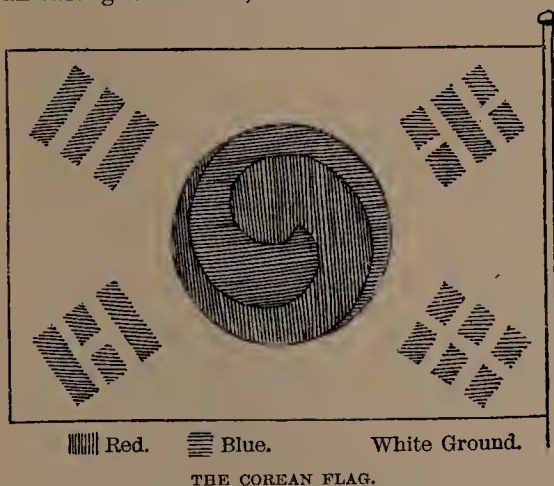
Steamers and Telegraphs.—The five steamers plying between the treaty ports and those not yet open to foreign commerce, are owned by the Korean Government. Telegraph lines are now in working order overland to Peking, and

by land to Fusan, and by submarine wire to Nagasaki, thus connecting China and Japan. The royal palace is lighted by electricity, thus facilitating the transaction of public business at night—a notable feature in Corea as in China.

Trade, Agriculture, and Resources.—The results of foreign commercial intercourse, so recently begun, while not yet stimulating to native manufactures, has given a marked impetus to agricultural and mineral development. The demand for exports other than gold has induced the farmers to raise more extensive crops of beans, peas, rice, and millet, and already the crops are fully equal to the means of transportation. Hitherto, in times of short crops, local famines were the rule. In years of plenty, the beans and other heavy crops were burned, out of consideration for the public health. Now, with the steamers, improved roads, and, more than all, the good prices obtained from foreigners, has begun a social and commercial revolution. A railway between Chimulpo and Seoul—or the capital and its treaty port—is now being arranged for by Government. An improved American 10-stamp mill has been erected, and is worked by six men from California. Anthracite coal has been found near Ping An, of excellent quality. The revenue from the customs in 1888 amounted to \$250,000; and a comparison with Japan shows that in the seven years' intercourse with foreign nations, Corea has made more progress than did Japan in eleven years of similar history. Preparations are being made for participation and display in the American Exposition in 1892.

The net value of the foreign import trade during 1888 was \$3,046,443; and of exports to foreign countries, \$867,058; total of imports and exports, \$3,913,501. The net revenue for 1888 was \$267,214.98, an increase of \$20,513.66 over the collection of 1887. The total entries at Corean ports during 1888 was 1,004 vessels, with a tonnage of 196,041; as against 716 entries aggregating 181,297 tons in 1887. Of the vessels in 1888, 221 were steamers.

The Flag.—The flag of Chō-sen or Corea is an oblong white field, in the center of which are



the two comma-shaped symbols—red and very dark blue, or blue black—which represent the two universal principles—active and passive, male and female, celestial and terrestrial. On these two principles all Corean philosophy is

based. The four characters in the corners of the flag, consisting of whole and broken lines, represent the four points of the compass, or four quarters of the heavens, and are one half of the Pak-wa, or eight diagrams. The Pak-wa are but an expansion, in another form, of the male and female principles, and, being capable of sixty-four combinations, represent to the learned of Corea the elements of all knowledge, the secrets of nature, and the origin of writing, which was discovered by their first king. No other nation in the world has so fully represented its metaphysics, philosophy, and creed upon its national emblem, which now floats from its ships, custom-houses, and legations. On the actual flags the tints vary from orange to yellow in the one, and from sky-blue to black in the other symbol in the center. With the characters in the corner, the flag symbolizes 'Ta Chō-sen, or "All Corea"; that is, the eight provinces and islands of the realm of Ta Chō-sen Kok, or Great Land of Morning Calm.

COSTA RICA, one of the five Central American republics. The area is estimated at 19,980 square miles. On Dec. 31, 1888, the population was 204,291.

Government.—The President of the republic is Don Bernardo Soto, whose Cabinet is composed of the following ministers: Foreign Affairs, Don Miguel J. Jimenez; Finance and Commerce, Don Mauro Fernandez; Interior, Public Works, Justice, Public Worship, and Charity, Don José Astua Aguilar; and War, Don Rodulfo Soto. The Costa Rican Minister at Washington is Don Pedro Pérez Zeledón. The United States Minister is Lansing B. Mizner; the United States Consul at San José, Mr. Wills. The Costa Rican Consul-General at New York is Don José M. Muñoz.

Army.—In July, 1889, the Congress of Costa Rica sanctioned the law fixing the number of the army for 1889 at 1,000; but this number will be increased to 5,000 in the event of internal disturbances. Should a foreign war occur, the executive is empowered to increase the number as may be required.

Finances.—The public indebtedness in 1889 was as follows: Foreign debt, £2,000,000 5-per-cent. bonds; home debt, \$646,124; paper money in circulation, \$844,943, \$100,000 of which are redeemed annually. During the past five fiscal years the revenue collected has been as follows: 1884-'85, \$1,965,375; 1885-'86, \$2,387,290; 1886-'87, \$2,435,189; 1887-'88, \$3,094,153; 1888-'89, \$3,500,743. This shows an increase of 75 per cent. since 1884-'85, with no increase of taxes or duties. The expenditure in 1888-'89 was \$3,476,722.

Education.—In 1888 there were 201 primary public schools, the attendance being 12,733.

Commerce.—The imports into Costa Rica in 1888 reached a total of \$5,201,922, England contributing \$1,649,402; Germany, \$833,882; France, \$506,510; Spain, \$43,892; Italy, \$11,566; Belgium, \$5,659; the United States, \$1,793,877; Mexico, \$1,147; Colombia, \$64,625; Ecuador, \$80,642; Peru, \$445; Cuba, \$60,276; Central America, \$149,999. The exports amounted to \$5,713,792, of which \$4,742,253 represented coffee; \$539,765, bananas; \$64,268, hides; \$11,338, India-rubber; 18,390, mother-of-pearl; and

\$259,004, coin. The decrease of importation, as compared with 1887, was \$399,303, and of exportation, \$522,771. The falling off in the imports was due to the fact that less machinery was introduced; at the same time less coffee was shipped, and bananas had suffered a notable decline in value. The United States trade was as follows:

CALENDAR YEAR.	Import into the United States.	Domestic export to Costa Rica.
1887.....	\$2,034,755	\$1,044,935
1888.....	1,412,106	933,560

Production in 1888.—The amounts of some leading agricultural products harvested in 1888 were as follow: Indian corn, 24,522,570 litres; beans, 3,682,657 litres; rice 1,975,998 litres; potatoes, 1,681,477 litres; wheat, 27,871 litres; yellow sugar, 550,436 kilogrammes; brown sugar, 6,166,208 kilogrammes. There were 7,607 coffee plantations, with 25,248,686 trees in bearing, and these produced in the aggregate, 14,142,240 kilogrammes. The number of cocoa plantations was 198, having 56,426 trees in bearing, and turning out 152,674 kilogrammes. From the Liman district alone there were shipped abroad, in the fiscal year 1887-'88, 896,245 bunches of bananas. The stock-farming interest owned in the same year 262,596 head of cattle, 50,738 horses, and 2,125 sheep, of a total value of \$5,056,375. The number of head of cattle slaughtered in 1888 for home consumption was 25,324; aggregate weights, 7,267,988 kilogrammes. There were in operation in the republic 2,299 factories, large and small.

Mining.—Great efforts were made in gold mining in the Ciruelitas district in 1888. The mines are eighteen miles north of the port of Puntarenas, 1,500 to 2,000 feet above sea-level. The climate is salubrious, there is an abundance of both water and timber, and the roads are in good condition. The proximity to the sea dispenses with the necessity of having only high-grade gold quartz.

Railroads.—Three lines of railway are in operation, the one connecting Port Limon with El Corrillo, 122 kilometres; the Cartago-Alajuela, 40 kilometres; and the Puntarenas-Esparta line, 20 kilometres. The first two are the property of the Costa Rica Railway Company, of London, to which the Government made a grant of 8,000 acres. There is a fourth line in course of construction, to connect Cartago with Siguire, which will measure 80 kilometres, and be in running order in 1890.

Earthquake.—The earthquake that shook Costa Rica on Dec. 30, 1888, was the severest known there since 1882. In San José both the national Capitol and the cathedral fronting the public square, which required ten years of labor to erect, at an expense of \$1,000,000, were ruined. The presidential palace, city hall, national post-office, and a dozen other public buildings, were almost wrecked. In surrounding cities the shock was even more severe, involving the loss of life and property. The damage throughout the country was estimated at \$5,000,000. The Poas volcano, 28 miles northwest of San José, whose summit is 8,895 feet above the sea, has become active. It had been dormant for several years.

COTTON-SEED PRODUCTS. For seventy years cotton seed was despised by the planter as a nuisance, and no one knew anything about it to warrant a belief that such an industry could have been made by its use as has been established. For most of those years—excepting the quantity necessary for the next year's crop—it was burned for fuel or to get it out of the way, or was carried away as garbage. That this despised refuse would become the foundation of an industry capitalized in nearly \$50,000,000 could not have been believed fifteen years ago. When cotton-seed oil has been talked about it has always been as if it were an adulterant. This is because the first, and still the largest use of the oil is in combination with other materials under such circumstances as to cause a general sentiment of reprobation.

Cotton seed or *Gossypium phospho* is, as its name indicates, simply the seed of the genus *gossypium*, or the ordinary cotton plant. The fruit is a three to five celled capsul, which contains the seeds to the number of eight or ten, black and covered with short lint. The invention of the saw-gin by Ely Whitney, in 1793, which obviated the difficulty of cleaning the wool, entirely revolutionized the cotton industry. There are about 1,000 pounds of seed and 500 pounds of lint to every bale of cotton, and the average yield is about 500 pounds of seed to the acre. The first effort at putting the seed to practical use was comprised in its simple crushing and application as a fertilizer, and as food for cattle. In the processes now in use, the seed as it comes from the gin is put into the mill and passed through the "linters," which are delicate machines formed to remove from each separate seed all of lint that has escaped the action of the gin. From the linter it goes into the huller, by which the shell is split open and torn off. The meat is then boiled in large caldrons, giving out a rich oily odor which is not unpleasant. Next the boiled seed is inclosed in small, coarse bags, and these are introduced each into a separate receptacle of a powerful steam or hydraulic press. The power is enormous, but it is applied gradually and until the oil, flowing out in steady streams and finding its way to tanks, has been entirely expressed, the contents of each bag remaining a hard, dry cake. The bags are now stripped from the cakes, to be used again while the cakes themselves are thrust into the jaws of a rapidly revolving mill, which reduces them to meal. This meal was formerly—and is still, to some extent—fed to cattle, though now the greater portion goes to make a fertilizer. The hulls furnish fuel for the mill.

The planter gets about \$10 a ton, or \$2.50 an acre, for his cotton seed. A ton of seed yields 76 gallons of oil, which varies in price from about 30 cents a gallon. It also yields about 20 pounds of short-staple lint which is used for cotton batting, etc. The first recorded attempt to obtain oil from cotton seed was made in 1826 by a gentleman from Virginia, who had constructed a small machine and produced a dark-red oil which in a common lamp gave a fair light. But this experiment does not seem to have advanced the idea of any other possible use of the oil, although it had long been known that the cotton-seed kernel was rich in that ingredient; in fact,

no effort to extract it profitably was made until 1834, and up to that time the seed not required for planting was without commercial value. During that year, at Natchez, Miss., the first attempt to crush the seed for commercial purposes was made; but the machinery was crude and inadequate, and the enterprise failed. Nothing more was done in this direction until 1847, when a second attempt was made in New Orleans, to be repeated there, and afterward in Memphis, Tenn., St. Louis, Mo., and Providence, R. I., but always without practical result. The industry then lagged, and another period of inactivity occurred which lasted until after the civil war, although there were then four mills in existence. The general disaster that befell these efforts appears to have been occasioned by defective machinery. As late as 1867 the annual consumption of seed was only about fifty thousand pounds, and less than thirty thousand barrels of oil was produced, even this small quantity exceeding the demand. Seed could then be bought, delivered on the banks of the Mississippi river, at from \$4 to \$8 a ton. In 1867 the earliest experiments in compounding a fertilizer from phosphates, acid, and cotton-seed meal were conducted on a plantation near Tallahassee, Fla.; and eleven years later this manufactory, being removed to Atlanta, Ga., began to accomplish profitable results. In 1878 the cotton-seed-oil mills were paying planters about eight cents a bushel for seed. Now they pay from sixteen to eighteen cents a bushel. The fertilizer produced from it can be bought for \$32 a ton, and a ton is sufficient for about ten acres. Its use doubles the yielding capacity of the soil.

By 1880 the cotton-seed-oil industry had received such recognition that in the preparation of the subject of cotton production the census for that year devoted considerable space to its consideration. Letters with a schedule of questions were sent to the mills and to cotton planters, and replies were received from about half the number of existing mills. These were mainly in Mississippi, Georgia, Texas, Louisiana, and Tennessee; but the returns from them were meager. The following figures are valuable as exhibiting the possible oil-mill products, obtained from information covering the year 1879. In that year the total amount of cotton seed was estimated at 2,531,699 tons, of which about 10 per cent. was reserved for seed, leaving about 2,300,000 tons convertible into oil and cake. Of this the possible oil-mill products would be 88,000,000 gallons of crude oil, 1,000,000 tons of oil cake, 28,000 tons of cotton from the linter, and 1,250,000 tons of hulls. The market value of these products would have been about \$55,000,000; the selling price of the seed, \$18,000,000. An interesting comparison shows that, by the actual amount of seed worked in 1879-'80 by forty-one mills, somewhat over one seventh of the available seed was actually worked. In order to replace the drain upon their fields resulting from the sale of all the seed, the planters would have had to purchase commercial fertilizers of the estimated value of over \$46,000,000; while they could have purchased back all the oil cake itself for about \$1,000,000 more than what they originally could have obtained for the seed. The figures of consumption, as reported by 41 oil

mills during 1879-'80, and the product, show as follows:

410,000 tons seed, at 35 gallons crude oil to the ton, 14,350,000 gallons, at 30 cents a gallon. . .	\$4,305,000 00
410,000 tons seed, yielding 22 pounds cotton lint to the ton, 9,020,000 pounds of cotton lint, at 8 cents a pound	721,600 00
750 pounds oil cake to the ton; 137,277 tons of cake at \$20 a ton	2,745,540 00
Total value of manufactured products.	\$7,772,140 00
Deduct sum paid for the seed	4,100,000 00

And there remains for value gained in the manipulation of seed. \$3,672,140 00

At the period just referred to, the principal use to which cotton-seed oil was put was that which afterward gave it its unfortunate reputation. Some ingenious person discovered that this oil, which in its crude state was worth \$14 a ton, could be refined up to a value of \$1 a gallon; and the result was, to quote the Atlanta, "Constitution," that "frugal Italians placed a cask of it at the root of every olive tree, and thus defied the Borean breath of the Alps." In fact, the exportation of cotton-seed oil to Italy became a source of alarm in that country, for not only was it employed in the adulteration of olive oil, but it was even substituted for it. In the autumn of 1880 the Italian Government contemplated the imposition of a heavy tax on cotton-seed oil, as a protection to the production of olive oil, though it was recognized that even then the protection would be inadequate, as the cotton-seed oil had already found its way into other countries to which the olive oil was exported, especially Russia, one of the chief outlets for olive oil. At this time cotton-seed oil could be carried to Italy and sold for less than half the value of olive oil, while it had been refined to such a degree of purity that, with proper manipulation, it was rendered impossible to detect the false from the true oil. At this time, also, cotton-seed oil was imported largely into Marseilles, where it was used by the soap industry, superseding the ground-nut oil. Up to 1860 cotton seed had been exported to Marseilles chiefly from Great Britain, where a few factories were engaged in crushing the seed. But this exportation was very small and chiefly obtained from crushing works at Hull.

The first important shipments of American oil to Marseilles were made about 1874, and were received with little favor, because of faults in the oil and more particularly in the mode of packing. These difficulties were overcome, and the cotton-seed oil reached remarkable perfection, so that in 1880 it was considered one of the most important staples of the Marseilles trade. The following figures show the trade in this product at Marseilles for 1879 and 1880:

YEARS.	United States.	England.	Total.
	Barrels.	Barrels.	Barrels.
1879	23,205	11,303	34,508
1880	34,622	18,840	53,463

During the five years from 1875 to 1879, inclusive, the importation of cotton-seed oil into Italy amounted to 140,000 quintals; while during the single year of 1880 these imports ran up to 213,754 quintals. In March, 1881, the Italian Chamber of Deputies approved a bill increasing the duty on cotton-seed oil, pure or mixed with

other oils, from six to twenty liras a quintal. It was claimed that the heavy adulteration of olive oil with cotton-seed oil for table use was injuring the home production of olive oil and degrading it in foreign markets. The law went into operation on April 22, 1881, but the results were extraordinary and unexpected by the Italian Government. Importations of cotton-seed oil subsequent to April, 1881, were made under contracts that ran to January, 1882, at which date all such importations practically ceased. The importation, which in March, 1881, amounted to 66,000 quintals, increased immediately on the promulgation of the new tariff law to 94,000, and then to 98,000 quintals, at which figure it continued until December, 1881, inclusive. In January, 1882, there was no importation whatever. But the most remarkable result of this prohibitory tariff is shown in the fact that while in March, 1881, the exportation from Italy of olive oil was 201,485 quintals and in April 265,503, it continued to increase at the rate of about 40 per cent. a month until December, when it reached 678,000 quintals. In January it fell to 52,059 quintals, showing that the mixing of cotton oil with olive oil had enabled the Italian dealers to find foreign markets for large and always increasing quantities of Italian olive oil, while the exportation of olive oil almost entirely ceased with the stoppage of the supply of cotton oil. Of course the application of this stringent tax, and the consequent falling off in the exportation of cotton-seed oil from the United States and the abandonment of its use in what had previously been its most important employment (the adulteration of olive oil) had a serious effect upon the mills in the United States. They were brought to a state where the decline in the manufacture threatened its extinction; but at this juncture orders from the West suddenly began to come in to the cotton-seed mills of the Southern States. These orders, gradually increasing, were significant of a new demand, the nature of which for some time the mill owners were unable to discover. This new demand arose from the employment of cotton-seed oil as an ingredient in the manufacture of lard—a use to which it has been put ever since, though not without opposition, as in 1888 Congress was called upon to pass an act for the alleged purpose of preventing the adulteration of lard with cotton-seed oil. Concerning this proposed bill, the Hon. Edward Atkinson said: "I think it would be judicious for the representatives of the cotton industry to ask by what authority the wholesome and nutritious and excellent vegetable oil of the cotton seed is thus stigmatized. If there is any adulteration in a noxious sense, it seems to me that the provision of law should be to prevent the adulteration of cotton-seed oil by the mixture of lard derived from the fat of swine." The application of cotton-seed oil in the manufacture of lard gradually increased from a small portion of it in combination with hog's lard until at present it is said that this proportion is about half of the entire product of lard, although, of course, it varies in different manufactories. And from a combination of beef tallow and cotton-seed oil a lard has been made which is gradually working its way into the market. Meantime, the Italian's tax was relaxed, so that in 1886 the imports into that

country from the United States of cotton-seed oil amounted to 3,444,246 pounds, valued at \$211,142; and the exportation of olive oil to the United States amounted to 5,536,411 pounds, valued at \$581,702. In 1887 the exportation from the United States of oil cake and meal amounted to \$7,309,691. In 1888 it amounted to \$6,423,930. In 1883 there were 83 cotton-seed-oil mills in the United States, 75 of which were in operation, distributed among the States as follows: Alabama 9, Arkansas 9, Georgia 6, Louisiana 8, Mississippi 10, Missouri 2, North Carolina 4, South Carolina 3, Tennessee 12, Texas 12.

By this time it had been established that for every \$100 worth of seed sold, if the planters invested \$80 in the purchase of oil-cake meal, the meal so purchased would be worth more to him as a fertilizer than the \$100 worth of seed sold. The quantity of seed obtained from the crop of 1882 was estimated at two thirds of the cotton output, viz, 2,585,686 tons. Of this, it was estimated that 500,000 tons were used by the mills. Compare these figures with the latest given, those of the treasurer of the American Cotton Oil Trust, of securities held by that organization on Aug. 31, 1889 (it being understood that these figures represent only a portion of the entire industry). The Trust owned at the period named 52 crude-oil mills, 7 refineries, 19 ginneries, 3 compressors, 7 fertilizer factories, 4 soap factories, and 4 lard plants; it also held a majority interest in 23 crude-oil mills, 7 refineries, 7 ginneries, 1 compressor, 1 fertilizer factory, 3 soap factories, 1 castor-oil and linseed mill. Finally, the Trust held a minority interest in 10 crude-oil mills, 6 refineries, and 1 compressor. The whole of this enormous interest was represented by the issue of American Cotton Oil Trust certificates for 421,838 shares of \$100 each, and fractional certificates for \$1,428, making a total of \$42,185,228. The total profit of the Trust for the fifteen months ending Aug. 31, 1889, was set down at \$1,655,784, or a net profit of about \$100,000 a month. The following departments are included in the industry when under the control of the American Cotton Oil Trust: 1, seed-compressing department; 2, refining department; 3, cotton-seed-cake department; 4, cotton-seed-meal department; 5, linseed, castor, table, and lubricating oil department; 6, domestic oil department; 7, foreign oil department; 8, lard department; 9, hull department; 10, soap department; 11, transportation department; 12, insurance department. The volume of business in these was officially reported as aggregating \$24,486,140. The crushing power of the industry in the hands of the Trust had been increased with the demand until it reached 733 tons a day. It was found that the use of the hulls as fuel saved many thousand dollars per annum. The cotton-seed hulls have found a new use; in the application to paper stock. In November, 1889, it was announced that a South Carolina farmer had produced a cotton plant that yielded the cotton seed in great abundance but without a sign of lint. This was accomplished by the gradual, careful, and critically scientific breeding of the plant, with the result that the discoverer announced his belief in the possibility of producing 400 bushels of seed to the acre, where only 35 bushels had been previously gathered

with the lint. The following table gives the export of cotton-seed oil from the United States for the latest period obtainable :

EXPORTS OF COTTON-SEED OIL FROM NEW YORK, BY COUNTRIES.

DESTINATION.	For week ending Nov. 11, 1889.	Sept. 1 to Nov. 11, 1889.
	Gallons.	Gallons.
Africa		1,146
Argentine Republic	7,958	7,958
Austria		68,980
Belgium		190
Brazil	40	2,794
British West Indies	1,305	14,673
British Guiana		1,184
Central America		80
Cuba		52
Danish West Indies		807
Dutch West Indies		10
England	12,674	153,136
France		253,193
Germany	3,430	49,909
Hayti		100
Italy		133,172
Mexico	1,289	1,670
Netherlands	189,296	330,002
New Zealand		632
North America		5,131
San Domingo	135	615
Scotland		250
United States of Colombia		54
Venezuela		258
Total	216,127	1,025,996

EXPORTS FROM NEW ORLEANS.

DESTINATION.	For week ending Nov. 8, 1889.	Sept. 1 to Nov. 11, 1889.
	Gallons.	Gallons.
Belgium		200
France		150
Netherlands	9,500	9,500
Total	9,500	9,850

In November, 1889, this interest became largely a matter of speculation at the New York Stock Exchange, the prices of the certificates fluctuating to an enormous extent, and finally to such a degree as to bring about the collapse of the Trust, the resignation of several of its officials, and the final reorganization under the title of the American Cotton Oil Company.

The cotton seed consists of a pericarp or woody shell and the kernel or meaty part; the hull and kernel are of about equal weight. The hull is hard and tough, and chiefly valuable to the planter for the potash it contains. In the kernel is incorporated an unusual amount of nitrogenous matter and oil, with some mineral matter. These constituents give the products their commercial value, and it is the province of the crusher to give them the most available form for use. The nitrogen, oils, and nitrogen-free extract give the value for feed, and the nitrogenous matter, together with the ash constituents, gives the value as a fertilizer. The oil of commerce comes from the liquid portions, which are profusely distributed through the entire kernel. Previous to the establishment of this industry, such of the surplus feed as was utilized was used for manure without any other preparation than allowing it to heat in mass, and a small portion was used without any preparation whatever as food for stock. In this form sheep and hogs

would eat it, but cows and horses would not, while all the stock eat the kernel with avidity.

The present method of manufacture requires massive and powerful machinery, with careful manipulation and the exercise of good judgment in the selection of seed. To some extent the oil has been extracted by treating the kernels, after grinding, with benzole or bisulphite of carbon; but this does not produce as much oil as the pressure in boxes, and the oil becomes tainted in the process. When it is used as food for stock, the cake and meal are both given; but the large majority of consumers prefer the meal. The cake is often preferred for shipment on account of its compact form, and ground after it reaches its destination.

The price of cotton-seed cake was quoted in November, 1889, at from \$18 to \$22 a ton; that of cotton-seed meal at \$16.50 to \$23 a ton. A large quantity of oil and cake is exported to the Netherlands, where it is used in the manufacture of butterine. In the feeding of cattle, cotton-seed-oil meal is usually mixed with other food, and the stock raisers prefer that it should be finely ground. It is largely used in Northern and Western States and finds extensive sale in New England and on the Continent of Europe. In England, American cake is preferred by many because their own meal is not only adulterated but their cake is made of less value from the practice of grinding the hulls and kernels together. The value of cotton seed for food is owing to the protein starch and fats it contains. According to analysis, cotton-seed-oil cake contains of digestible nutriment, 31 per cent. of protein, 18.03 of starch, and 12.3 of fat. Other seed, like peas or beans, rich in protein, contain but little fat. Cotton seed, being rich in both, containing even more than linseed, is valuable for mixing with products that are poor in these and rich in starch, such as straw, hay, potatoes, and turnips.

In regard to the use of cotton-seed meal for cattle as a butter producer, competent authorities express opinions on both sides; but the preponderance of the testimony is favorable to its judicious use for this purpose. The constituents of cotton-seed meal that give it value as a fertilizer are nitrogen, potash, and phosphoric acid. An average of eleven analyses of American meal gives 6.03 nitrogen, equal to 7.32 ammonia, 2 potash, 3.20 phosphoric acid. The manufacturers of commercial fertilizers use it to a large extent in their mixtures, as the amount they require of the ingredients of the meal can be obtained cheaper in this than in any other form. It is believed that the application of the meal directly to the land is wasteful, and that the best and most economical method is to feed it to the stock in the proper quantity and manner. The oil is also used for illumination, for lubrication, for dressing morocco, for softening wool, and indeed for most purposes for which other oils are used. It is sometimes mixed with, or employed instead of linseed oil, although it does not possess the drying qualities of linseed. Besides being employed in the manufacture of oleo-margarine, it is also used with cream in the making of a substitute for butter. It makes excellent glycerin, and contains the elements of nitro-glycerin and kindred compounds. The best quality of cotton-seed oil is now considered

by many authorities in the United States to be equal to olive oil.

In 1883, the cash capital of the 83 mills then existing was estimated at \$7,811,130. The estimated aggregate capacity of those mills was 43,547,100 gallons of oil, requiring 1,288,376 tons of seed. In 1883 the average price of seed was \$12.88½ a ton, and in 1889, it was \$14 a ton. The average yield of oil in 1883 was 33¼ gallons to the ton of seed; in 1889, 35 gallons. The average yield of cake in 1883 was 733 pounds to the ton of seed. The average price for crude oil in 1883 was 35.05 cents a gallon; in 1889 it was 38 to 40 cents a gallon. The average price of cake in 1883 was \$17.94½ a ton; in 1889 it ranged from \$18 to \$24.50 a ton. The average yield of lint is about 18 pounds to the ton of seed, worth from 5 to 6 cents a pound. The yield of ashes from the hulls is about 45 pounds to the ton, selling at an average price of \$10 a ton.

Dr. Allan McLane Hamilton, of New York, pronounces cotton-seed oil one of the best fats and one of the most important articles in diet that we can procure; and a physician announced before the Kings County Pharmaceutical Society, in June, 1889, that he had experimented satisfactorily in the use of cotton-seed oil as a basis for ointments, and exhibited a sample of oxide zine ointment which he thought would give a better result than those otherwise made. The chief cotton-seed-oil presses of this country are at the following-named points:

ALABAMA.—Selma, Mobile, Montgomery, Eufaula, and Huntsville.

ARKANSAS.—Little Rock, Argenta, Fort Smith, Texarkana, Brinkley, and Helena.

GEORGIA.—Atlanta, Augusta, Albany, Columbus, Macon, and Rome.

ILLINOIS.—Cairo.

LOUISIANA.—New Orleans, Shreveport, Baton Rouge, and Monroe.

MISSISSIPPI.—Clarksdale, Columbus, Canton, Grenada, Greenville, Meridian, Natchez, Vicksburg, and West Point.

MISSOURI.—St. Louis.

NORTH CAROLINA.—Charlotte and Raleigh.

SOUTH CAROLINA.—Columbia and Greenville.

TENNESSEE.—Memphis, Jackson, Nashville, and Dyersburg.

TEXAS.—Brenham, Dallas, Galveston, Houston, Palestine, and Waco.

CUBA, an island in the West Indies, belonging to Spain; area, 118,833 square kilometres; population, 1,521,684, of whom 977,992 are native Spaniards and creoles, 10,632 white foreigners, 43,811 Chinese coolies, and 489,249 negroes and mulattoes. Havana's population is 225,000. The Consul-General at Havana is Ramon O. Williams; the Consul at Matanzas, Frank H. Pierce; at Santiago, Otto E. Reimer; and at Cienfuegos, Henry A. Ehninger.

Army.—The Commander-in-Chief and Captain-General of the island (since March 13, 1889) is Don Manuel de Salamañea y Negrete. The strength of the Spanish forces in Cuba in 1889 was 20,749. The total expenses for the Department of War is \$6,501,102 in gold. In the total of forces mentioned above are not comprised the Guardias Civiles, nor the corps of Orden Público in charge of the police; but both forces are militarily organized, and under command of army officers.

Navy.—The navy comprises one cruiser, the

"Jorge Juan," one torpedo boat, thirteen cannonnières, and two gunboats, maintained at a cost of \$1,404,451 in gold. All forces—administration, artillery, engineers, and penal and sanitary services—are under the command of a rear-admiral who resides in Havana, and has a salary of \$12,000.

Finance.—The budget for 1889-'90 estimates the outlay at \$25,554,390, and the income at \$25,549,920. The total debt amounted to \$186,000,000 in 1889, and the annual sum of \$9,000,000 is set aside to pay interest on it. The \$186,000,000 named include \$40,000,000 of paper money in circulation. The Captain-General receives a salary of \$40,000, and controls a fund and certain perquisites which generally swell his income to about \$90,000. The receipts from customs during the fiscal year 1888-'89 were \$13,563,467, against \$10,673,133 in 1887-'88.

Railroads.—In 1889 there were 1,499 kilometres of railway in operation and 240 in course of construction. During the summer the Remedios and Santa Clara Railroad Company began the construction of branch lines to Ranchuelo and San Juan. The company raised for this purpose a loan of \$500,000 among its shareholders. Simultaneously the Havana and Bahia Railroad Companies were consolidated.

Telegraphs.—The length of lines in operation is 4,500 kilometres, and the service is attended to by 187 offices. During the summer the Government of Jamaica resolved to suspend the subsidy of \$10,000 per annum that it had been paying to the Cuban Submarine Telegraph Company, because the rate for dispatches has been considerably increased. Consequently in September telegraph tolls were reduced 50 per cent. and the transmission of messages in English and French was permitted.

Commerce.—The American trade with Cuba is shown in the following table:

YEAR.	Import from Cuba into the United States.	Domestic export from the United States to Cuba.
1887	\$45,393,447	\$9,145,534
1888	50,208,414	10,990,400
Increase	\$4,814,967 11 per cent.	\$1,844,566 20 per cent.

The increase, both in imports and in exports, was due to the rise in the price of sugar.

Sugar and Molasses.—During the crop year 1888-'89 the island produced 544,300 tons of sugar and 98,860 tons of molasses, against 647,860 tons of sugar and 125,460 tons of molasses in 1887-'88, showing a decrease of 130,160 tons, or 17 per cent. This was due to the cyclone of September, 1888, which prostrated the canes. It was said in July, 1889, at Sagua, that most of the estates that have heretofore been making muscovado sugars would either manufacture centrifugals during the season 1889-'90, or sell their canes to the nearest centrifugal factory. It was also said that an American syndicate would establish a large sugar factory near Enervujada. In August Dr. B. Otamendi, of Havana, contracted for a diffusion apparatus of a capacity of 400 tons of cane a day, to be put up in time for the next crop on his estate. The chief difficulty that Cuban sugar planters have

to grapple with is the comparative scarcity of colored field-hands. The wages of these advanced in 1889 from \$20 a month and found to \$30, and this attracted negroes in large numbers from other West India islands, chiefly Trinidad.

Mining.—In August a bed of excellent coal was discovered near Santa Clara. The gas company at that place reduced the price of gas from \$5 to \$3 a 1,000 feet. At the same time a company was formed at Pensacola, for the purpose of supplying the Cuban and West Indian coal trade from the Alabama mines. Mining interests are taking the front rank among the indus-

tries of Cuba. Iron and manganese ores are extensively mined by two American companies near Santiago de Cuba. Preparations are making to begin operations in a gold mine near Santa Clara, and some Americans are about to open what are supposed to be valuable deposits of iron ore near Cabañas, at the west end of the island not far from Havana.

Education.—There are in Cuba 720 public and 537 private schools, with an average attendance of 40,352 children. The annual cost of maintaining the public schools is \$560,227, which amount is furnished by the 135 municipalities on the island.

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DAKOTA (see also NORTH DAKOTA and SOUTH DAKOTA), a Territory of the United States, organized in 1861; admitted to the Union as two States, North Dakota and South Dakota, on Nov. 2, 1889; area, 150,932 square miles; population at the last decennial census (1880), 135,177; capital, Bismarck. The population on June 30, 1889, was estimated by the Governor in his last annual report to be about 650,000.

Government.—The following were the Territorial officers from Jan. 1 until the date of admission to the Union: Governor, Louis K. Church, Democrat, succeeded by Arthur C. Mellette, Republican; Secretary, M. L. McCormack, succeeded by Luther B. Richardson; Treasurer, J. D. Lawler, succeeded by J. M. Bailey, Jr.; Auditor, James A. Ward, succeeded by J. C. McManima; Attorney-General, T. C. Skinner, succeeded by Johnson Nickens; Superintendent of Public Instruction, Eugene A. Dye, succeeded by Leonard A. Rose; Commissioner of Immigration, P. F. McClure, succeeded by F. H. Hagerty; Railroad Commissioners, Judson La Moure, H. J. Rice, J. H. King; Chief Justice of the Supreme Court, Bartlett Tripp; Associate Justices, Charles M. Thomas, Roderick Rose, William B. McConnell, John W. Carland (who resigned in March and was succeeded by Frank R. Aiken), James Spencer, C. F. Templeton, and Louis W. Crofoot.

Finances.—The total bonded indebtedness of the Territory at the time of its division and admission to the Union this year amounted to \$1,250,007.46, expended in building and furnishing public institutions.

The report of the Territorial Treasurer for 1888 shows a balance on hand at the beginning of the year amounting to \$89,325.69. The receipts, amounting to \$552,003.08, were from the following sources: From the 2-9 mills tax, \$411,361.03; from railroads, \$104,167.82; from the Western Union Telegraph Company, \$2,122.30; from insurance companies, \$20,538.13; from the United States Government, \$300; from the Secretary of the Territory, \$85.25; from the Auditor, \$5,224.88; from bond interest fund, \$5,565.66; from stock indemnity fund, \$2,638.01. The disbursements were as follows: Auditor's warrants, \$468,555.26; paid counties for their proportion of railroad taxes, \$65,364.05; paid counties for telegraph tax, \$2,399.51; exchange and express charges, \$459.98; paid on account of Territorial

printing, \$85.07; stock indemnity fund, \$8,065.40; paid bond interest, \$88,066.97; leaving a balance of \$8,332.51 in the treasury at the close of the year. The tax levy is limited by law to 3 mills on the dollar, which is the rate for 1889. The total cost of maintaining the twelve public institutions of the Territory for the last two fiscal years was \$656,162.42, and \$530,000 was expended in permanent improvements.

Assessments.—The following table gives a comparative statement of the valuation of different kinds of property, as returned by the assessors in 1888 and 1889:

ITEMS.	1888.	1889.
Total assessment.....	\$161,420,974 82	\$164,199,576 90
Acres of land.....	23,332,316 85	23,284,297 50
Value of land.....	\$91,875,729 84	\$91,586,734 15
Average value per acre..	\$3 85	\$3 93
Value of town lots.....	\$26,125,555 80	\$28,530,279 00
Value of merchandise...	\$6,571,007 00	\$6,239,113 00
Capital in manufactures..	\$893,850 00	\$786,276 00
Number of horses.....	268,410	296,825
Value of horses.....	\$12,120,346 58	\$12,855,195 00
Average value.....	\$45 16	\$43 81
Number of mules.....	16,057	16,305
Value of mules.....	\$822,772 09	\$764,085 00
Average value.....	\$51 24	\$46 86
Number of cattle.....	597,808	623,734
Value of cattle.....	\$7,634,548 94	\$7,292,571 75
Average value.....	\$12 77	\$11 69
Number of sheep.....	152,396	178,467
Value of sheep.....	\$207,790 93	\$242,934 85
Average value.....	\$1 36	\$1 36
Number of swine.....	174,023	255,622
Value of swine.....	\$446,811 30	\$606,571 80
Average value.....	\$2 57	\$2 37
Value of vehicles.....	\$2,250,964 25	\$2,158,866 60
Moneys and credits.....	\$2,227,115 00	\$2,494,617 75
Household furniture...	\$368,636 60	\$285,501 00
Stocks and shares.....	\$2,837,930 93	\$2,688,254 00
All other property.....	\$7,087,915 01	\$7,723,967 00

Legislative Session.—The eighteenth session of the Territorial Legislature began on Jan. 8, and adjourned on March 9. One of its earliest acts provided for an election, on April 9, of delegates to a proposed convention, which should meet at Grafton on the second Tuesday of May and frame a Constitution for North Dakota. This act never took effect, as by its terms it should become void in case Congress, at the session then being held, should pass an enabling act for the admission of North Dakota. After much discussion of railroad measures and the failure of several bills—including one abolishing the railroad commission, which passed both Houses, but was

vetoed by the Governor—a measure, known as the “Farmer’s Alliance bill,” was enacted, which modifies the existing law in the following particulars: The Governor shall appoint three commissioners, one from North Dakota, one from central Dakota, and one from South Dakota. No person shall be qualified who owns bonds or stock in any railroad, or who is in any manner pecuniarily interested in any railroad, public warehouse, or elevator. The commissioners and their secretary shall have free transportation. All railroads shall receive grain in bulk for transportation, without discrimination as to the manner or condition in which it is received, or as to the persons from whom it is taken, whether loaded upon the cars from teams or from elevators. They shall permit individuals, without distinction, to construct side tracks from elevators, mills, or warehouses, and connect them with the line of their road. When any company is unable to supply all cars demanded, it shall make a *pro rata* distribution among all applicants. The provision of the interstate commerce law as to long and short haul rates is embodied in the act. It requires reasonable charges for transportation of property, for hauling or storage of freight, or for use of cars, etc.; prevents pooling; requires proper facilities for handling freight, and for the accommodation of passengers, and for interchange of cars at points where railroads intersect; but no buildings shall be required if there be no village having one hundred inhabitants and a post-office within one mile of the crossing. Consignees are entitled to have twenty-four hours after notice of arrival free of expense for unloading cars. The act requires schedules showing classification, rates, fares, and charges for the transportation of passengers and property, and joint schedules of fares, to be published within sixty days, and prohibits changes in classification in the rates, fares, or charges, except on due publication. It is the duty of any railroad commissioner to ascertain whether provisions of the law are violated and to visit each line of road as often as practicable. Any person, corporation, or municipal corporation may make complaint, and if such complaint appears well founded, it is the duty of the commissioners to bring suit against the railroad in the name and at the expense of the Territory. Suit can not be dismissed except on consent of the Attorney-General or the commissioners. The Attorney-General shall be *ex officio* attorney for said commission. Statistical reports are required as to every branch of railroad business.

The law passed in 1883, taxing railroads upon their gross earnings, which the Supreme Court of the Territory had pronounced unconstitutional so far as levied upon interstate traffic, was repealed, and as a substitute, an act was passed providing that all railroads that signified within a certain time their willingness to pay a gross-earnings tax in lieu of other taxation, might do so, but upon all others a property tax should be levied. Companies who avail themselves of the provisions of this act must pay all arrears of tax claimed by the Territory, and 3 per cent. annually for five years on their gross earnings from all traffic, and thereafter 2 per cent. annually. A gross-earnings tax was also imposed upon express companies and sleeping-

car companies. The code known as the “compiled laws of 1887” was accepted and legalized.

A new tenure-of-office act provides that the term of every Territorial appointive officer shall cease ten days after the expiration of the term of the Governor appointing him, but such officer shall continue in his office until his successor is qualified.

A memorial was sent to Congress, asking for the admission of the Territory as two States.

There was established at Hot Springs, Fall River County, the Dakota Soldiers’ Home. For the purpose of erecting buildings the sum of \$45,000 is to be raised by the issue of bonds to that amount, payable in twenty years. A special tax was levied to pay the interest thereon and the principal at maturity. A further issue of bonds, amounting to \$22,700, payable in twenty years, was authorized, in order to refund to the citizens of Grand Forks advances made by them in rebuilding certain additions to the University of North Dakota, destroyed by storm in June, 1887. The levy of a special tax for payment of interest and the principal at maturity was authorized. The Auditor was directed to issue refunded warrants, bearing 5 per cent. interest and payable in five years, in payment of outstanding warrants drawn upon the Capitol-building fund amounting to \$53,158.83, and accrued interest.

The following appropriations in support of public institutions were made for two years: University of Dakota, \$70,000; University of North Dakota, \$57,000; Madison Normal School, \$31,700; Normal School at Spearfish, \$31,100; Reform School at Plankinton, \$11,000; Dakota Agricultural College, \$52,375; School of Mines at Rapid City, \$33,500; School for Deaf Mutes, \$33,800; Dakota Penitentiary at Sioux Falls, \$72,300; Territorial Penitentiary at Bismarck, \$57,600; Yankton Insane Hospital, \$111,075; Hospital for the Insane at Jamestown, \$114,500.

Other acts of the session were as follow:

Requiring all persons engaged in making abstracts of title to give a bond with sureties to the county, as security against errors in such abstracts.

Imposing a penalty for importing, selling, exposing in a public place, or suffering to run at large, any horse or other animal affected with glanders.

To provide for the sinking of artesian wells, and the construction of permanent water-courses therefrom for purposes of irrigation, the undertaking to be first approved by the county probate judges, and the expense to be assessed upon the property benefited.

Prescribing reasonable attorney’s fees in cases of foreclosure of mortgages.

Creating the office of assistant Attorney-General.

Providing for publication of notice of foreclosure sale of chattel mortgages.

Authorizing cities of not fewer than 3,000 inhabitants to extend their corporate limits.

Requiring annual statements from building and loan corporations, and exempting their shares from taxation.

Authorizing counties to issue bonds to procure seed wheat for needy farmers therein.

Creating the county of Meade out of a portion of Lawrence County.

Requiring a residence of one year in the United States, six months in the Territory, three months in the county, and thirty days in the precinct, in order that a citizen may be qualified to vote.

Limiting the legal rate of interest to 12 per cent.

Fixing the rate of interest on unpaid Territorial warrants at 7 per cent.

Providing for a lien upon grain for thrashing.

Giving police powers to conductors of railway passenger trains.

Authorizing towns and cities to aid in the construction of railroads.

To provide for a tax on dogs.

Committees were appointed early in the session to institute investigations into the conduct of the trustees of the two insane hospitals, the Territorial veterinarian, and other officials of the Territory. The trustees of each hospital, in their last report, had shown considerable expenditures beyond the appropriations made for each institution, and they had also made unusual charges for their own services. The legislative committee, although it could discover no fraud, found a lack of economy in the management of the hospitals, and reported that the trustees had held meetings more frequently than was necessary. In fact, the trustees of nearly all the public institutions had presented large bills for their services. The expenses of the trustees of the Reform School at Plankinton for two years for *per diem* and mileage were \$5,508, and of the trustees of the Bismarck Penitentiary, \$6,936. The expenses of all the bonds of trustees for the two years amounted to \$30,077.32. To prevent such large expenditures for such purposes in the future, the Legislature passed an act providing that each of the public institutions of the Territory should be governed by a board of five trustees, nominated by the Governor and approved by the Legislative Council (the Governor having power to fill vacancies after adjournment of the Council), who should have the same power and duties as the governing boards that they displace, except that each board should hold not more than twelve sessions each year, not exceeding twenty-four days in all, and the members should receive \$3 for each daily session, and traveling expenses. The investigation into the conduct of the Territorial Veterinarian showed that from May, 1887, to November, 1888, his traveling expenses had amounted to \$4,313, while in that time he had destroyed horses and cattle valued at more than \$8,000. These expenditures, when no epidemic existed, were considered excessive.

The relations between Gov. Church and the Legislature were somewhat strained throughout the session. Of 128 laws enacted, 35 were passed over the Governor's veto, including the Soldiers' Home bill and the general appropriation bill. The total number of vetoes was 43, eight of which were sustained, while there were also 24 "pocket vetoes." Trouble began when the Legislature, against the objection of the Governor, began the investigations above mentioned into the conduct of his appointees. He was further incensed at the passage of an act over his veto, which deprived him of the use of several thousand dollars for clerk-hire in his office. This sum was derived from the proceeds of the fee of five dollars, which the Secretary of the Territory was directed to charge for issuing each notary-public commission, three fifths of which was allowed the Governor for the above-mentioned object. The act of this year reduced the fee to two dollars, no part of which was available for the Governor's use. It was claimed that he had used much more of the fund than his office required. The Republicans of the Lower House

went so far as to introduce a memorial to the President-elect, complaining of the dictatorial and undignified conduct of the Governor, his opposition to legislation, his unfit appointments, extravagance, and other shortcomings. This memorial was not passed; but as soon as President Harrison was inaugurated, forty-five of the seventy-two members of the Legislature united in sending him a telegram asking for the immediate removal of the Governor. Before any change was made, however, the Legislature adjourned, having rejected all of his nominees to Territorial offices. He then proceeded to reappoint the rejected nominees, claiming, also, that he could issue to them a commission for two years, notwithstanding the fact that he had signed the new tenure of office bill, which provided that the term of office of all gubernatorial appointees should terminate ten days after the retirement of the Governor appointing them. His claim depended upon the construction of several acts of the Legislature with reference to each other, but it was not supported by the Secretary of State, who refused to sign and seal the new commissions. The new Governor, therefore, came in unhampered by any question regarding the rights of the nominees of his predecessor, and at once proceeded to make sweeping changes in the offices.

Education.—The following official statistics cover the school year ending June 30, 1889:

Children of school age.....	121,318
Pupils enrolled in public schools.....	93,826
Average daily attendance.....	59,124
Graded schools.....	160
Ungraded schools.....	3,977
Schools built.....	266
Value of school-houses, sites, and furniture....	\$3,022,361
Amount paid for school-houses.....	\$173,355 27
Teachers employed: Male.....	1,802
Teachers employed: Female.....	3,965
Average monthly wages: Male.....	\$36 25
Average monthly wages: Female.....	\$32 84
Average length of school year.....	106 days.
Total expenditures.....	\$1,959,579

The school-district system prevails in sixteen counties, while in seventy-two counties the township system of government has been adopted. The officers under the latter system are a State superintendent, who is *ex officio* member of a State board of education, a county superintendent for each county, and a board of education in each township. In addition, there is established in eighteen towns and cities a special system of graded schools, under which 9,551 pupils were enrolled this year.

There are 1,715,009 acres of school land in the Territory, the total value being \$9,929,902.11. In some of the older and richer counties much of this land has been cultivated by private individuals without rendering any compensation therefor to the Territory.

During the Territorial period these lands were not available for school purposes, but now the gift from the Government becomes operative, and will provide a handsome fund for each of the new States.

There are two normal schools, one at Madison, which enrolled for this year 246 pupils in its normal department and 141 in the model school, and one at Spearfish. There is also a normal department in the University of Dakota, at Vermillion, Clay County, and another in the Uni-

versity of North Dakota, at Grand Forks. Nine private schools and colleges have normal classes. The enrollment of students at the University of Dakota in 1887 was 197, in 1888 it was 307, in 1889 it had reached 476. The entire appropriation of \$35,000 for the last school year was expended. At the University of North Dakota the enrollment in 1887 was 75, in 1888 it was 98, in 1889 it was 199. Of these 199, 106 were in the preparatory department, 60 in the normal department, and 20 in the college proper. The Agricultural College at Brookings contained 250 pupils during 1889, or 22 more than for the previous year. Of this number, 126 are pursuing college studies. There were 17 graduates from this institution last year.

Charities.—The number of patients at the Hospital for the Insane at Yankton, on July 1, 1888, was 164, and on July 1, 1889, it was 209. The entire building is capable of accommodating 360 patients. At the North Dakota Hospital there were, in October, 1888, 178 patients, and in October, 1889, 186.

Prisons.—For the year ending June 3, the total amount expended by the Territory for the maintenance of the Dakota Penitentiary at Sioux Falls was \$10,070.30. There were 92 inmates at the beginning of the year and 85 at its close. At the Bismarck Penitentiary, the number of prisoners at the latter date was about 60. The Reform School at Plankinton, first established in 1888, contained 33 pupils in October of this year, 24 boys and 9 girls.

Militia.—In October, 1889, the organized militia of the Territory numbered 972 officers and men, divided into two regiments. An encampment was held near Watertown, at which 75 officers and 578 enlisted men were present.

Railroads.—The total mileage of each system in the Territory on Dec. 31, 1888, is shown by the following table:

	Miles.
Black Hills and Fort Pierre Railway.....	15
Burlington, Cedar Rapids, and Northern Railway.....	83
Chicago, Milwaukee, and St. Paul Railway.....	1,215
Chicago and Northwestern Railway.....	758
Chicago, St. Paul, Minneapolis, and Omaha Railway...	87
Fremont, Elkhorn, and Missouri Valley Railway.....	123
Minneapolis, St. Paul, and Sault Ste. Marie Railway...	99
St. Paul, Minneapolis, and Manitoba Railway.....	1,191
Northern Pacific Railway.....	837
Minneapolis and St. Louis Railway.....	40
Illinois Central Railway.....	15
Total in 1888.....	4,463

There was but little railroad building during 1889.

Settlement.—The total area of public land filed upon during the year ending June 30 was 2,096,030 acres, against 1,838,142 during the year preceding. There were 9,098 final proofs, of which 3,306 were cash entries, 5,680 final homestead proofs, and 112 timber-culture proofs. Most of the present vacant land, 19,877,273 acres, lies in the Bismarck and Devil's Lake districts, North Dakota, and the Rapid City, South Dakota, the amount still open for settlement in the Bismarck district being 13,922,029 acres. The opening of the Sioux reservation will increase the unoccupied land to 30,000,000 acres.

Agriculture.—The following table shows the acreage and estimated yield of the various crops for 1889 for the Territory at large, and for North

Dakota and South Dakota separately, according to the latest report of the Governor:

CROPS.	North Dakota.	South Dakota.	Territory.
Wheat, acres.....	2,655,991	2,013,726	4,669,717
Wheat, bushels.....	26,721,660	17,287,332	44,008,992
Corn, acres.....	30,022	784,655	814,677
Corn, bushels.....	1,000,175	21,821,898	22,822,073
Oats, acres.....	450,563	671,829	1,122,392
Oats, bushels.....	9,746,093	11,622,615	21,368,708
Barley, acres.....	128,631	127,338	255,969
Barley, bushels.....	2,760,902	1,694,875	4,455,777
Rye, acres.....	3,167	16,587	19,754
Rye, bushels.....	45,481	255,620	301,101
Buckwheat, acres.....	205	2,828	3,033
Buckwheat, bushels.....	2,897	29,667	32,564
Potatoes, acres.....	16,119	29,537	45,656
Potatoes, bushels.....	1,401,130	2,637,132	4,038,262
Flax, acres.....	57,511	345,808	403,314
Flax, bushels.....	495,202	2,754,376	3,249,578

The farm acreage in 1885, according to the census of that year, was 16,842,412, of which 6,560,758 acres were under cultivation. The cultivated area in 1887 was about 9,000,000 acres, and was more than 10,000,000 acres in 1889. In the older sections of Dakota mixed farming is yearly becoming more general. Stock raising is a rapidly growing industry. In 1880 there were 41,670 horses, 2,703 mules, 40,572 milch cows, 100,243 head of cattle, 30,244 sheep, and 63,394 hogs, of a total value of \$6,463,274, in the Territory. In 1889 there were 264,781 horses, valued at \$20,659,590; 16,850 mules, valued at \$1,596,324; 239,057 milch cows, valued at \$6,693,596; 813,878 oxen and other cattle, valued at \$16,619,318; 242,117 sheep, valued at \$609,747; 453,875 hogs, valued at \$3,248,386, the total value being \$49,426,961.

Mining.—Gold and silver mining in the Black Hills has been confined almost exclusively to Lawrence County, and the output of bullion is credited to four leading mines. The following figures will show the estimated output for the successive years since 1877: In 1877, \$2,000,000; in 1878-'79, \$6,000,000; in 1880, \$5,000,000; in 1881, 4,070,000; in 1882, \$3,475,000; in 1883, \$3,350,000; in 1884, \$3,450,000; in 1885, \$3,300,000; in 1886, \$3,125,000; in 1887, \$3,150,000; in 1888, \$3,150,000. Recent developments in the Southern and Central Hills indicate that producing mines will soon be added in that neighborhood.

Banks.—There are in Dakota 346 banks, with an aggregate paid-up capital of \$9,130,600, and having a surplus of \$1,321,790. Among these are 59 national banks, with a capital of \$3,800,000 and surplus of \$923,700, and 207 private and State banks, with a capital of \$5,330,600 and surplus of 398,090. Of these, 24 national banks, with a capital of \$1,540,000 and surplus of \$379,000, and 48 private and State banks, with a capital of \$1,151,500 and surplus of \$55,100, are in North Dakota; and 35 national banks, with a capital of \$2,260,000 and surplus of \$554,700, and 159 private and State banks, with a capital of \$4,179,100 and surplus of \$342,990, in South Dakota. Local deposits have been steadily increasing.

Artesian Wells.—The artesian wells of Dakota are among the wonders of the world. The great well in the Place Herbert, at Paris, discharges 1,000 gallons a minute, but there are wells in Dakota that throw out 3,000 gallons a

minute. The artesian-well district lies in the valley of the James or Dakota river, flowing wells being found all the way from Yankton, in the extreme south, to Jamestown, North Dakota. At Yankton, two 6-inch wells, 600 feet deep, with a pressure of 56 pounds to the square inch, furnish power for water works and fire protection, run an electric-light plant, tow-mill, feed-mill, furniture manufactory, and several printing establishments. One well at Huron with a pressure of over 200 pounds to the square inch, depth 863 feet, and 6-inch pipe, runs the water works and motors for printing houses and other establishments. Two wells at Aberdeen, 900 feet deep, with a pressure of 200 pounds to the square inch, furnish the power for water works and a pumping sewerage system. The Jamestown well is 1,576 feet deep, with a pressure of 100 pounds to the square inch. A system of water works is maintained as at other places, without expense of fuel or engineer.

The Sioux Reservation.—Notwithstanding the failure of the commissioners, appointed under the act of 1888, to accomplish their object, Congress, early in 1889, passed another act designed to procure the opening of this great reservation to settlement. The terms of the new bill are more favorable to the Indians than those of the former act. They are to receive \$1.25 an acre for all their land disposed of by the United States to actual settlers within three years after the act becomes operative, 75 cents for all lands sold in the two years subsequent, and 50 cents per acre for the remaining land. The former act gave them a uniform rate of 50 cents an acre. The area of land opened for settlement is about the same in each instance. The quantity of land to be allotted to heads of families of the Sioux nation on their respective diminished reservation, whenever they take their lands in severalty, is double the quantity previously provided. The allotments in severalty are not to be compulsory. Under this act, the President appointed Ex-Governor Charles A. Foster, of Ohio, Hon. William Warner, of Missouri, and Gen. George A. Cook, as commissioners to secure the consent of the Indian tribes interested. They reached the reservation early in June, and visited each of the agencies, completing their work early in August. They were finally successful in securing the consent of the necessary three fourths of all the Indians. It is therefore only a question of time when 11,000,000 acres of the reservation will be open to settlement, and the two parts of the new State of South Dakota heretofore separated will be united by a band of new settlements. The area of the reservation is 26,751,105 acres.

County Indebtedness.—The summary of the county indebtedness in Dakota, as returned to the Territorial statistician, shows the total bonded indebtedness to be \$2,648,905 and the amounts of warrants outstanding \$759,749, or a total indebtedness of \$3,408,654. The total indebtedness of Aurora County is \$35,400; of Barnes County, \$81,331; Beadle, \$67,940; Benson, \$23,740; Billings, \$1,151; Bon Homme, \$27,500; Bottineau, \$16,445; Brookings, \$8,057; Brown, \$1,500; Brulé, \$17,029; Buffalo, \$7,064; Burleigh, \$129,600; Campbell, \$14,555; Butte, \$22,433; Cass, \$219,000; Cavalier, \$1,600; Charles Mix, \$12,900; Clark, \$22,526; Clay, \$5,500;

Codington, \$47,122; Custer, \$75,768; Davison, \$70,805; Day, \$15,075; Deuel, \$11,500; Douglas, \$14,693; Eddy, \$5,739; Edmunds, \$17,200; Emmons, \$32,265; Fall River, \$14,149; Faulk, \$22,736; Foster, \$18,000; Grand Forks, \$42,150; Grant, \$107,550; Griggs, \$73,889; Hamlin, \$52; Hand, \$10,811; Hanson, \$20,000; Hughes, \$59,100; Hutchinson, \$73,786, and \$18,000 in the treasury; Hyde, \$40,540; Jerauld, \$100,000; Kingsbury, \$13,000; Lake, \$33,375; Lamoure, \$8,507; Lawrence, \$633,358; Lincoln, \$400; Logan, \$12,895; McCook, \$20,000; McHenry, \$7,991; McIntosh, \$5,794; McLean, \$23,871; McPherson, \$9,495; Marshall, \$9,451; Mercier, \$17,134; Miner, \$15,036; Minnehaha, \$12,000; Moody, \$43.50; Morton, \$65,000; Nelson, 31,200; Oliver, \$33,370; Pennington, \$133,497; Potter, \$20,629; Ramsey, \$58,000; Riehlant, \$33,652; Roberts, \$23,231; Rolette, \$26,966; Sargent, \$29,300; Spink, \$11,684; with \$11,536 in the treasury; Stark, \$15,000; Steele, \$22,811; Stutsman, \$75,709; Sully, \$12,000; Towner, \$26,415; Traill, \$105, with \$22,069 in the treasury; Turner, \$22,000; Union, \$31,150; Walsh, \$25,000, and \$24,200 in the treasury; Walworth, \$9,142; Ward, nothing, and \$2,646 in the treasury; Wells, \$8,000; Yankton, \$334,618.

DALTON, JOHN CALL, physiologist, born in Chelmsford, Mass., Feb. 2, 1825; died in New York city, Feb. 12, 1889. He was graduated at Harvard in 1844, and at the medical department of that university in 1847. Physiology attracted



JOHN CALL DALTON.

his attention, and almost immediately he began his researches in that branch of medical science. In 1851 he presented his essay "On the Corpus Luteum of Menstruation and Pregnancy" (Philadelphia, 1851) to the American Medical Association, and gained its prize. This led to his appointment to the chair of physiology in the medical department of the University of Buffalo, where he was the first to teach that branch by illustrations from living animals. In 1854 he accepted a similar professorship at the Vermont Medical College, in Woodstock, which he filled for two years. In 1859 he was called to the Long Island College Hospital, which had then just begun its career as a medical school, and he held the chair of physiology there until 1861. In

April, 1861, he went to Washington as surgeon of the Seventh Regiment of the New York National Guards, and in August was made brigade-surgeon of volunteers. He continued in active service, holding various places, until his resignation in March, 1864. During the winter of 1854-'55 he delivered a course of lectures on physiology at the College of Physicians and Surgeons in New York city, temporarily taking the place of Dr. Alonzo Clark. He was elected to that chair in 1855, which he held until 1883, when he was made emeritus professor, and advanced to the presidency of the college, which connection he retained until his death. Dr. Dalton was a member of the American Medical Association, the New York State Medical Society, the County Medical Society, the New York Society of Neurology and Electrology, the New York Pathological Society, and the Medical Journal Association of New York City. In 1876 he was delegate from the American Medical Association to the International Medical Congress in Philadelphia, and presided over the section on Biology. He was elected to the National Academy of Sciences in 1864, and in 1874-'77 he was vice-president of the New York Academy of Medicine. The degree of LL. D. was conferred on him by Columbia in 1887. His researches were chiefly in the direction of physiology, in which branch of science he was a recognized leader. These include "Some Account of the Proteus Anguinus" (1853), "On the Constitution and Physiology of the Bile" (1857), "Anatomy of the Placenta" (1858), "Sugar Formation in the Liver" (1871), "On the Spectrum of Bile" (1874), "A New Method of Determining the Position of Absorption Bands in the Spectrum of Colored Organic Bands" (1874), "Experimental Production of Anæsthesia by Cerebral Compression" (1876), and "Report on the Corpus Luteum" (1878). Besides many contributions to medical journals and to cyclopædias, he published "Introductory Address delivered at the College of Physicians and Surgeons" (New York, 1855); *A Treatise of Human Physiology* (Philadelphia, 1859; 7th ed., 1882); "Vivisection, What it is, and What it has accomplished" (New York, 1867); "A Treatise on Physiology and Hygiene for Schools, Families, and Colleges" (1868); "The Investigation of Abortion in Cows" (Albany, 1868); "Trichina Spiralis, a Lecture" (New York, 1869); "Spontaneous Generation" (1872); "Galen and Paracelsus" (1873); "The Origin and Propagation of Disease" (1874); "Experimentation on Animals as a Means of Knowledge in Physiology, Pathology, and Practical Medicine" (1875); "Doctrines of the Circulation" (1884); "Topographical Anatomy of the Brain" (Philadelphia, 1885); and "History of the College of Physicians and Surgeons of New York" (New York, 1888).

DAMIEN DE VEUSTER, JOSEPH, the leper-priest, born near Louvain, Belgium, Jan. 3, 1840; died at Kalawao, Molokai, Hawaiian Islands, April 15, 1889. At nineteen years of age, Damien, a theological student at the university, having received minor orders, and belonging to the Society of the Sacred Hearts of Jesus and Mary (Society of Picpus), offered himself as a missionary in place of his brother, who

was prevented by fever from going to Honolulu. Damien's offer was accepted, although he was under age, and a week later he was on his way. Arriving in the Sandwich Islands he was ordained, and performed the ordinary missionary labor of a Catholic priest until 1873. In that year he was present at the dedication of a chapel



JOSEPH DAMIEN DE VEUSTER.

in the island of Maui, and heard the bishop express a regret that he was unable to send a priest to Molokai, the leper settlement. He at once volunteered to go to the place, and in company with the bishop and the French consul set sail in a boat loaded with cattle for Kaulapapa, the port of the leper colony. At a public meeting of the eight hundred lepers, half of whom were Catholics, the bishop said, "Since you have written me so often that you have no priest, I leave you one for a little time," and returned at once to the vessel. Father Damien did not accompany him to the shore, but entered upon his new mission, in full assurance that he must finally contract the disease, so loathsome that it has been said, "corruption could go no further, nor flesh suffer deeper dishonor, this side of the grave." Three varieties of leprosy are known—that mentioned in the Bible, where the whole body becomes white and scaly, but no further inconvenience results; the anæsthetic, in which feeling is lost, and a sloughing off of the extremities progresses unfelt; and the tubercular, a more virulent type. The two last are generally combined. The following is a description by an eye witness:

When leprosy is fully developed, it is characterized by the presence of dusky red or livid tubercles of different sizes upon the face, lips, nose, eye-brows, and ears, and the extremities of the body. The skin of the tuberculated face is at the same time thickened, wrinkled, and shining, and the features are very greatly distorted. The hair of the eye-brows, eye-lashes, and beard falls off; the eyes are often injected, and the conjunctiva swelled, the pupil of the eye contracts, giving the organ a weird, cat-like expression; the voice becomes hoarse and nasal; the sense of smell is impaired or lost, and that of touch or common sensation is strangely altered. The tuberculated parts, which are in the first instance sometimes super-sensitive, latterly in the course of the disease become paralyzed, or anæsthetic. As the malady progresses, the tubercles soften and open, ulcerations of similar mucous tubercles appear in the nose and throat, rendering

the breath exceedingly offensive; tubercular masses, or leprous tubercles, as shown by dissection, begin to form internally upon various mucous membranes, and on the surface of the kidneys, lungs, etc. Craeks, fissures, and circular ulcers appear on the fingers, toes, and extremities, and joint after joint drops off by a kind of spontaneous gangrene. Sometimes the upper and sometimes the lower extremities are specially afflicted by this mortification and mutilation of parts. It is a singular and a fortunate fact that the leper suffers but little pain until almost his final hour.

Leprosy exists in countries the most opposing in climate. At various times it has been found in all parts of the world. In Great Britain, one hundred and ten leper-houses existed from the twelfth to the sixteenth century. For extermination of the disease, segregation of the afflicted is the only remedy. In 1865 this measure was resolved upon by the Hawaiian Government, a plague of leprosy having broken out in the islands five years before. Isolated cases were previously known. The law was enforced with difficulty, but everywhere with success, and it is still in force. More than eight hundred lepers are confined at the prison-hospital of Molokai, and maintained at government expense. The situation precludes all chance of escape. At the base of cliffs three thousand feet high, at the northern extremity of the island, juts out a peninsula three miles long and one mile wide, and here are the two leper villages of Kalawao and Kaulapapa, the crater of an extinct volcano being between. The whole is described as "a crust over the water, with a broken bubble in the midst." Two hundred acres of arable land, fenced in at foot of the mountains, are cultivated by lepers, and there is an excellent range for stock. The climate in winter is cold and damp, both which conditions are inimical to leprosy. The first victims removed to the spot, torn from their homes and for the most part strangers to one another, were sheltered in miserable huts, built by themselves. To construct these, the native groves had been cut down, and branches of castor-oil trees were used. They were covered with leaves of *ki* and sugar-cane, and in the best instances with *pili* grass. Here men, women, and children were huddled together, without regard to sex or age. The weaker ones were dying at a rate of about ten a week. The stronger ones, abandoned to the excesses of despair, spent their time in playing cards, ran about naked, intoxicated with *ki*-root beer, and renewed the infamous *hula* or pagan dances. For some weeks after his arrival, Father Damien had no shelter save the single pandanus tree preserved in the churchyard. After a time the white residents at Honolulu, chiefly Protestants, sent him some lumber and a purse of one hundred and twenty dollars, with which he built a house. Henceforward, as he labored among the lepers, he reiterated appeals to the government for aid, which finally were listened to, and a change was brought about. For himself, he dressed the sores of the dying, consoled their last agonies, and in many instances dug their graves. A south wind, which blew down some of the huts, caused a sanitary condition that resulted in the shipping of lumber from which decent houses were built. Many of these were put up by the priest himself, assisted by his leper boys. A school of forty of these was under his own par-

ticular direction. The supply of water had been scarce, and that used was brought by the lepers on their backs for a considerable distance. This was remedied by piping from a natural reservoir, seventy-two by fifty-five feet. Food and clothing were procured with greater ease by the establishment of a store. An allowance of six dollars a year is granted to each leper, to be expended here for purchase of clothes, and one thousand dollars of the government appropriation was invested to lay in the first stock of this store, which has since maintained itself. By intercession of Father Damien, clothes were also sent to the lepers by charitable persons. Prior to 1878 he acted as medical adviser to half the settlement, but after that date regular physicians were appointed by the Government. Father Damien's influence accomplished at last the suppression of horrible practices, where local authority had failed. The making of *ki*-root beer was prohibited, and the prohibition was enforced. Father Damien in person assisting to execute the law. By threats and persuasions the native utensils for distilling were seized; but it was not until the brave priest became one of themselves, and was able to address his congregations as "we lepers," that opposition to his efforts ceased. Marriages were allowed among lepers, and, by Father Damien's advice, those married to lepers were permitted to accompany them to the settlement. Healthy conditions of living ameliorated the type of the disease, though no cure has yet been discovered. In 1881 Bishop Hermann visited Molokai, to confer upon Father Damien the degree of Knight Commander of the Order of Kalakaua I. Of the decoration the priest remarked to Charles Warren Stoddard in 1883, "It is not for this I am here." Queen Kapiolani also visited the island in 1884, and in the same year a fair was held for the benefit of the lepers. The villages at this time presented a thriving appearance. A subscription of fifteen hundred dollars was raised by Henry Labouchere, through his paper, and forwarded to Father Damien by Cardinal Manning, and five thousand dollars were sent to him by the Rev. Ilugh B. Chapman, an English Episcopal clergyman. For a time after his arrival at Molokai, Father Damien was treated with great rigor by the government, permission being refused him to leave the island to visit a brother priest, for the purpose of confession. The sheriff of Molokai had orders to arrest him, should he make such an attempt; but six months later a formal permit was granted, which, however, he seldom used. With the aid of the lepers he enlarged and painted the chapel, decorating it also within, and the sacramental vessels of gold were sent to him by the Superior of St. Roche, in Paris. In the church of Kaulapapa, where he held services also on the same days, he was assisted at first for a time by Father Albert, a missionary priest from Tahiti. After eleven years of constant intercourse with lepers, during which he had buried sixteen hundred, although he cooked his own food, the first appearance of the disease manifested itself in Father Damien's left foot in 1884. Following the usual course, it developed slowly, disfigured his hands and face; but he was cheerful and continued his usual occupations. "People pity me, and think me unfortunate," he said, "but I think myself the happiest of mission-

aries." In December, 1888, he was visited by E. Clifford, an Englishman, Treasurer of the Church Army, an Episcopal institution, who desired to try upon him gurgun oil, an Indian specific for leprosy, which afforded temporary relief. At this time he was described by Mr. Clifford as "forty-nine years old, a thick-set, strongly built man, with black, curly hair and short gray beard. His countenance must have been handsome, with a full, well-curved mouth, and a short, straight nose; but he is now disfigured with leprosy." On Jan. 28, 1889, he wrote to this friend, "*Au revoir au ciel*," and three weeks before his death he repeated his delight that he should "celebrate Easter in Heaven." On March 28th, he was finally prostrated; and though not an ascetic, refused steadily comforts that could not be shared by those under his charge. The concentration of the disease in his throat and lungs caused extreme suffering, and he himself recognized signs of the end. The house was besieged by his affectionate people, who were with difficulty restrained from the room. The evening before his death, which took place at midnight, he took leave of all and blessed them, especially the children. His last days were attended by a brother priest, and a devoted lay-brother. By his own request, he was buried beneath the pandanus tree that had sheltered him sixteen years before. Shortly after his death there was an outbreak of intemperance among the lepers, the making of ki-root beer being resumed. In March, 1886, by request of the Hawaiian Government, Father Damien wrote a short account of his work, to accompany the report of the Board of Health. It was throughout a plea for further amelioration of the lepers' condition. The motive of his life is modestly expressed in the opening words: "By special providence of Our Divine Lord, who during his public life showed a particular sympathy for the lepers, my way was traced toward Kalawao in May, A. D. 1873."

The settlement of Molokai is the only one of its kind in the world, and from the accession of King Kalakaua has been treated by the government with liberal generosity. Father Conrardi, who went to become an assistant of Father Damien in 1886, and from that time shared his home, is a native of Oregon. Father Wendolin resides at Kaulapapa, and three Franciscan Sisters are in care of a hospital. Two are from Syracuse, N. Y. One of the two lay-brothers at work in the settlement is an American also. A memorial fund has been organized in England, to erect a monument to Father Damien at his grave in Molokai, to endow a ward in a London hospital for the study of leprosy, and to make inquiry into the condition of the disease in India, where there are two hundred and fifty thousand lepers. The average death-rate of lepers at Molokai is one hundred and fifty yearly, and the hospital proper contains eighty patients. The length of life on the island, after removal, is usually four years. Nine tenths of the people are engaged in active occupation. There is a branch hospital at Honolulu for determination of cases, and shipments of lepers are made weekly to Molokai. The natives manifest no fears of the disease. Occasional visits are allowed to the island. See "The Lepers of Molokai," by Charles Warren Stoddard (Notre Dame, Ind., 1885; en-

larged and illustrated ed., with selections from Damien's letters, 1890); "Life and Letters of Father Damien," edited with an introduction by his brother, Father Pamphile (London, 1889); and "Father Damien: a Journey from Cashmere to his Home in Hawaii," by Edward Clifford (London, 1889).

DAVIS, JEFFERSON, an American statesman, born in Todd County, Ky., June 3, 1808; died in New Orleans, La., Dec. 6, 1889. His father was Samuel Davis, who served in the Georgia cavalry during the War of Independence, and during the boy's infancy removed to Wilkinson County, Miss. The son was appointed by President Monroe to a cadetship at West Point, where he was graduated in 1828, standing No. 23 in a class of thirty-three members. Not one of his classmates became distinguished. Of the eleven members of the class (including Mr. Davis) who were living when the civil war began in 1861, two were in the National military service and three in the Confederate. A short time before his death, Mr. Davis dictated a brief and fragmentary autobiography, which was published in "Belford's Magazine" for January, 1890. By permission, we copy a large portion of it here:

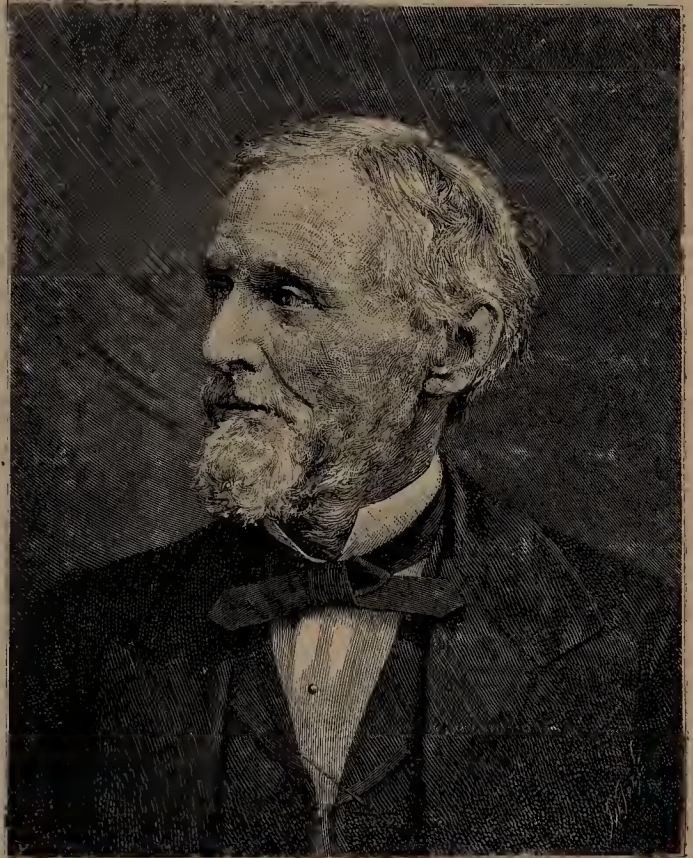
"I was born June 3, 1808, in Christian County, Ky., in that part of it which, by a subsequent division, is now in Todd County. At this place has since risen the village of Fairview, and on the exact spot where I was born has been constructed the Baptist church of the place. My father, Samuel Davis, was a native of Georgia, and served in the War of the Revolution, first in the "mounted gun-men," and afterward as captain of infantry at the siege of Savannah. During my infancy my father removed to Wilkinson County, Miss. After passing through the County Academy, I entered Transvaal College, Kentucky, at the age of sixteen, and was advanced as far as the senior class when I was appointed to the United States Military Academy at West Point, which I entered in September, 1824. I graduated in 1828, and then, in accordance with the custom of cadets, entered active service with the rank of lieutenant, serving as an officer of infantry on the Northwest frontier until 1833, when, a regiment of dragoons having been created, I was transferred to it. After a successful campaign against the Indians, I resigned from the army, in 1835, being anxious to fulfill a long-existing engagement with a daughter of Col. Zachary Taylor, whom I married, not 'after a romantic elopement,' as has so often been stated, but at the house of her aunt and in the presence of many of her relatives, at a place near Louisville, Ky. Then I became a cotton-planter in Warren County, Miss. It was my misfortune, early in my married life, to lose my wife; and for many years thereafter I lived in great seclusion on the plantation in the swamps of the Mississippi. In 1843 I for the first time took part in the political life of the country. Next year I was chosen one of the presidential electors at large of the State; and in the succeeding year was elected to Congress, taking my seat in the House of Representatives in December, 1845. The proposition to terminate the joint occupancy of Oregon, and the reformation of the tariff, were the two questions arousing most public attention at

that time, and I took an active part in their discussion, especially in that of the first.

"During this period hostilities with Mexico commenced, and in the legislation which the contest rendered necessary my military education enabled me to take a somewhat prominent part. In June, 1846, a regiment of Mississippi volunteers was organized at Vicksburg, of which I was elected colonel. On receiving notice of the election, I proceeded to overtake the regiment, which was already on its way to Mexico, and joined it at New Orleans. Reporting to Gen. Taylor, then commanding at Camargo, my regiment, although the last to arrive—having been detained for some time on duty at the mouth of the Rio Grande—was selected to move with the advance upon the city of Monterey. The want of transportation prevented Gen. Taylor from taking the whole body of volunteers who had reported there for duty. The Mississippi regiment was armed entirely with percussion rifles. And here it may be interesting to state that Gen. Scott, in Washington, endeavored to persuade me not to take more rifles than enough for four companies, and objected particularly to percussion arms, as not having been sufficiently tested for the use of troops in the field. Knowing that the Mississippians would have no confidence in the old flint-lock muskets, I insisted on their being armed with the kind of rifle then recently made at New Haven, Conn.—the Whitney rifle. From having been first used by the Mississippians, these rifles have always been known as the Mississippi rifles.

"In the attack on Monterey, Gen. Taylor divided his force, sending one part of it by a circuitous road to attack the city from the west; while he decided to lead in person the attack on the east. The Mississippi regiment advanced to the relief of a force which had attacked Fort Lenaria, but had been repulsed before the Mississippians arrived. They carried the redoubt, and the fort which was in the rear of it surrendered. The next day our force on the west side carried successfully the height on which stood the bishop's palace, which commanded the city. On the third day the Mississippians advanced from the fort which they held, through lanes and gardens, skirmishing and driving the enemy before them until they reached a two-story house at the corner of the Grand Plaza. Here they were joined by a regiment of Texans, and from the windows of this house they opened fire on the artillery and such other troops as were in view. But, to get a better position for firing on the principal building of the Grand Plaza, it was necessary to cross the street, which was swept by canister and grape, rattling on the pavement like hail; and, as the street was very narrow, it was determined to construct a flying barricade.

Some long timbers were found, and, with pack-saddles and boxes, which served the purpose, a barricade was constructed. Here occurred an incident to which I have since frequently referred with pride. In breaking open a quartermaster's storehouse to get supplies for this barricade, the men found bundles of the much-prized Mexican blankets, and also of very serviceable shoes and pack-saddles. The pack-saddles were freely taken



JEFFERSON DAVIS.

as good material for the proposed barricade; and one of my men, as his shoes were broken and stones had hurt his feet, asked my permission to take a pair from one of the boxes. This, of course, was freely accorded; but not one of the very valuable and much-prized Mexican blankets was taken. About the time that the flying barricade was completed, arrangements were made by the Texans and Mississippians to occupy houses on both sides of the street for the purpose of more effective fire into the Grand Plaza. It having been deemed necessary to increase our force, the Mississippi sergeant-major was sent back for some companies of the First Mississippi which had remained behind. He returned with the statement that the enemy was behind us, that all our troops had been withdrawn, and that orders had been three times sent to me to return. Gov. Henderson, of Texas, had accompanied the Texan troops, and, on submitting to him the question what we should do under the message, he realized—as was very plain—that it was safer to remain where we were than—our supports having been withdrawn—to re-

turn across streets where we were liable to be fired on by artillery, and across open grounds where cavalry might be expected to attack us. But, he added, he supposed the orders came from the general-in-chief, and we were bound to obey them. So we made dispositions to retire quietly; but, in passing the first square, we found that our movement had been anticipated, and that a battery of artillery was posted to command the street. The arrangement made by me for crossing it was that I should go first; if only one gun was fired at me, then another man should follow; and so on, another and another, until a volley should be fired, and then all of them should rush rapidly across before the guns could be reloaded. In this manner the men got across with little loss. We then made our way to the suburb, where we found that an officer of infantry, with two companies and a section of artillery, had been posted to wait for us, and, in case of emergency, to aid our retreat.

"Early next morning, Gen. Ampudia, commanding the Mexican force, sent in a flag and asked for a conference with a view to capitulation. Gen. Taylor acceded to the proposition, and appointed Gen. Worth, Gov. Henderson, and myself, commissioners to arrange the terms of capitulation. Gen. Taylor received the city of Monterey, with supplies, much needed by his army, and shelter for the wounded. The enemy gained only the privilege of retiring peacefully—a privilege which, if it had not been accorded, they had the power to take by any one of the three roads open to them. The point beyond which they should withdraw was fixed by the terms of capitulation, and the time during which hostilities were to be suspended was determined on by the length of time necessary to refer to and receive answers from the two governments. A few days before the expiration of the time so fixed, the Government of the United States disapproved of the capitulation, and ordered the truce to be immediately terminated. By this decision we lost whatever credit had been given to us for generous terms in the capitulation, and hostilities were to be resumed without any preparations having been made to enable Gen. Taylor, even with the small force he had, to advance farther into the enemy's country. Gen. Taylor's letter to Mr. Marcy, Secretary of War, was a very good response to an unjust criticism; and in the 'Washington Union' of that time I also published a very full explanation of the acts of the commissioners, and of the military questions involved in the matter of capitulation in preference to continuing the siege and attack.

"Gen. Taylor, assuming that it was intended for him to advance into the interior of Mexico, then commenced to prepare himself for such a campaign. To this end he made requisitions for the needful transportation, as well as munitions, including, among other supplies, large India-rubber bags in which to carry provisions for days, and which, being emptied before we reached the desert of sixty miles, would, by being filled with water, enable his troops and horses to cross those desert plains. These and other details had been entered into under the expectation that the censure of the treaty of Monterey meant a march into the interior of

Mexico. Another thing required was a new battery of field-pieces to take the place of the old Ringgold battery, which by long service had become honey-combed. When all these arrangements were nearly completed, it was decided to send Gen. Scott, with discretionary powers, which enabled him to take nearly all the tried troops Gen. Taylor had, including even the engineer then employed in the construction of a fort, and the battery of new guns to replace the old ones, which were deemed no longer safe, but which, under the intrepid Capt. Bragg, afterward did good service in the battle of Buena Vista.

"Gen. Taylor, with the main body of his army, went to Victoria, and there made arrangements to send them all to report to Gen. Scott, at Vera Cruz, except the small force he considered himself entitled to as an escort on his route back to Monterey through an unfriendly people. That escort consisted of a battery of light artillery, a squadron of dragoons, and the regiment of Mississippi riflemen. With these he proceeded through Monterey and Saltillo to Agua Nueva, where he was joined by the division of Gen. Wool, who had made the campaign of Chihuahua.

"Gen. Santa Anna, commanding the army of Mexico, was informed of the action which had been taken in stripping Gen. Taylor of his forces, and was also informed that he had at Saltillo only a handful of volunteers, which could be easily dispersed on the approach of an army. Thus assured, and with the prospect of recovering all the country down to the Rio Grande, Santa Anna advanced upon Agua Nueva. Gen. Taylor retired to the Angostura Pass, in front of the hacienda of Buena Vista, and there made his dispositions to receive the anticipated attack. As sage as he was brave, his dispositions were made as well as the small force at his command made it possible. After two days of bloody fighting, Gen. Santa Anna retired before this little force, the greater part of which had never before been under fire. The encounter with the enemy was very bloody. The Mississippians lost many of their best men, for each of whom, however, they slew several of the enemy. For, trained marksmen, they never touched the trigger without having an object through both sights; and they seldom fired without drawing blood. The infantry against whom the advance was made was driven back, but the cavalry then moved to get in the rear of the Mississippians, and this involved the necessity of falling back to where the plain was narrow, so as to have a ravine on each flank. In this position the second demonstration of the enemy's cavalry was received. They were repulsed, and it was quiet in front of the Mississippians until an aide came and called from the other side of the ravine, which he could not pass, that Gen. Taylor wanted support to come as soon as possible for the protection of the artillery on the right flank. The order was promptly obeyed at double quick, although the distance must have been nearly a mile. They found the enemy moving in three lines upon the batteries of Capt. Braxton Bragg and the section of artillery commanded by George H. Thomas. The Mississippians came up in line, their right flank opposite the first line of the advancing enemy, and at a

very short range opened fire. All being sharpshooters, those toward the left of the line obliqued to the right, and at close quarters and against three long lines very few shots could have missed. At the same time the guns of Bragg and Thomas were firing grape. The effect was decisive; the infantry and artillery of the enemy immediately retired. At the close of the day Santa Anna bugled the retreat, as was supposed, to go into quarters; but when the next sun rose there was no enemy in our front.

"The news of this victory was received in the United States with a degree of enthusiasm proportionate to the small means with which it was achieved; and generosity was excited by the feeling that Gen. Taylor had been treated with injustice. Henceforward the march of 'Old Rough and Ready' to the White House was a foregone conclusion.

"In this battle, while advancing to meet the enemy, then pressing some of our discomfited volunteers on the left of the field of battle, I received a painful wound, which was rendered more severe in consequence of remaining in the saddle all day, although wounded early in the morning. A ball had passed through the foot, leaving in the wound broken bones and foreign matter, which the delay had made it impossible then to extract. In consequence I had to return home on crutches.

"In the mean time a senator of Mississippi had died, and the Governor had appointed me his successor. Before my return home, President Polk had also appointed me brigadier-general of volunteers; an appointment which I declined on the ground that volunteers are militia, and that the Constitution reserved to the State the appointment of all militia officers. This was in 1847. In January, 1848, the Mississippi Legislature unanimously elected me United States Senator for the rest of the unexpired term, and in 1850 I was re-elected for the full term as my own successor. In the United States Senate I was chairman of the Military Committee; and I also took an active part in the debates on the Compromise measures of 1850, frequently opposing Senator Douglas, of Illinois, in his theory of squatter sovereignty, and advocating, as a means of pacification, the extension of the Missouri Compromise line to the Pacific. When the question was presented to Mississippi as to whether the State should acquiesce in the Compromise legislation of 1850, or whether it should join the other Southern States in a convention to decide as to the best course to pursue in view of the threatened usurpations of the Federal Government, I advocated a convention of the Southern States, with a view to such co-operation as might effectually check the exercise of constructive powers, the parent of despotism, by the Federal Government.

"The canvass for Governor commenced that year. The candidate of the Democratic party was by his opponents represented to hold extreme opinions—in other words, to be a disunionist. For, although he was a man of high character and had served the country well in peace and war, this supposition was so artfully cultivated that, though the Democratic party was estimated to be about eight thousand in majority, when the election occurred in September the

Democratic candidates for a convention were defeated by a majority of over seven thousand, and the Democratic candidate for Governor withdrew. The election for Governor was to occur in November, and I was called on to take the place vacated by the candidate who had withdrawn from the canvass. It was a forlorn hope, especially as my health had been impaired by labors in the summer canvass, and there was not time before the approaching election to make such a canvass as would be needed to reform the ranks of the Democracy. However, as a duty to the party I accepted the position, and made as active a campaign as time permitted, with the result that the majority against the party was reduced to less than one thousand.

"From this time I remained engaged in quiet farm-labors until the nomination of Franklin Pierce, when I went out to advocate his election, having formed a very high opinion of him as a statesman and a patriot, from observations of him in 1837 and 1838, when he was in the United States Senate. On his election as President, I became a member of his Cabinet, filling the office of Secretary of War during his entire term. During these four years I proposed the introduction of camels for service on the Western plains, a suggestion which was adopted. I also introduced an improved system of infantry tactics; effected the substitution of iron for wood in gun-carriages; secured rifled muskets and rifles and the use of Minié balls; and advocated the increase of the defenses of the sea-coast, by heavy guns and the use of large-grain powder. While in the Senate I had advocated, as a military necessity and as a means of preserving the Pacific territory to the Union, the construction of a military railway across the continent; and, as Secretary of War, I was put in charge of the surveys of the various routes proposed. Perhaps for a similar reason—my previous action in the Senate—I was also put in charge of the extension of the United States Capitol.

"The Administration of Mr. Pierce presents the single instance of an Executive whose Cabinet witnessed no change of persons during the whole term. At its close, having been re-elected to the United States Senate, I re-entered that body. During the discussion of the Compromise measures of 1850 the refusal to extend the Missouri Compromise line to the Pacific was early put on the ground that there was no constitutional authority to legislate slavery into or out of any Territory, which was in fact and seeming intent a repudiation of the Missouri Compromise; and it was so treated in the Kansas-Nebraska Bill. Subsequently Mr. Douglas, the advocate of what was called squatter-sovereignty, insisted upon the rights of the first immigrants into the Territory to decide upon the question whether migrating citizens might take their slaves with them; which meant, if it meant anything, that Congress could authorize a few settlers to do what it was admitted Congress itself could not do. But out of this bill arose a dissension which finally divided the Democratic party, and caused its defeat in the presidential election of 1860.

"When Congress met, in the fall of 1860, I was appointed one of a Senate Committee of Thirteen to examine and report on some practicable adjustment of the controversies which then

threatened the dissolution of the Union. I at first asked to be excused from the committee, but at the solicitation of friends agreed to serve, avowing my willingness to make any sacrifice to avert the impending struggle. The committee consisted of men belonging to the three political divisions of the Senate: the State-rights men of the South; the Radicals of the North; and the Northern Democrats; with one member who did not acknowledge himself as belonging to any one of the three divisions—Mr. Crittenden, an old-time Whig, and the original mover of the compromise resolutions. When the committee met, it was agreed that, unless some measure which would receive the support of the majority of each of the three divisions could be devised, it was useless to make any report; and, after many days of anxious discussion and a multiplicity of propositions, though the Southern State-rights men and the Northern Democrats and the Whig, Mr. Crittenden, could frequently agree, they could never get a majority of the Northern Radicals to unite with them in any substantive proposition. Finally, the committee reported their failure to find anything on which the three divisions could unite. Mr. Douglas, who was a member of the committee, defiantly challenged the Northern Radicals to tell what they wanted. As they had refused everything, he claimed that they ought to be willing to tell what they proposed to do.

"When officially informed that Mississippi had passed the ordinance of secession, I took formal leave of the Senate, announcing for the last time the opinions I had so often expressed as to State sovereignty, and, as a consequence of it, the right of a State to withdraw its delegated powers. Before I reached home I had been appointed by the Convention of Mississippi, commander-in-chief of its army, with the rank of major-general, and I at once proceeded with the task of organization. I went to my home in Warren County, in order to prepare for what I believed was to be a long and severe struggle. Soon a messenger came from the Provisional Confederate Congress at Montgomery, bringing the unwelcome notice that I had been elected Provisional President of the Confederate States. But, reluctant as I was to accept the honor, and carefully as I had tried to prevent the possibility of it, in the circumstances of the country I could not refuse it; and I was inaugurated at Montgomery, Feb. 18, 1861, with Alexander H. Stephens, of Georgia, as Vice-President."

The story of Mr. Davis's life for the next four years would hardly be intelligible except in connection with an outline of the great campaigns of the war and the efforts of the Southern States to establish their independence. Accordingly, such a sketch is here presented, from which it will appear that Mr. Davis was, more than any other one man, the animating spirit of the Confederacy.

The Constitution of the Confederate States was an almost exact copy of that of the United States. The essential differences were these: In the preamble it inserted the clause "each State acting in its sovereign and independent character." It forbade the enactment of any tariff for protection. It gave Congress the power "to prohibit the introduction of slaves from any

State not a member of, or Territory not belonging to, this Confederacy." It forbade the enactment of any law "impairing the right of property in negro slaves." It made the President's term of office six years, and rendered him ineligible for a second term. It provided that the Constitution itself might be amended by a vote of two thirds of the States (instead of three fourths, as in the Constitution of the United States). It made no mention of any right of secession, except as that might be inferred from the clause inserted in the preamble. Mr. Davis was chosen Provisional President of the Confederacy for one year, and was inaugurated on Feb. 18, 1861. His Cabinet consisted of Robert Toombs, of Georgia, Secretary of State; Leroy P. Walker, of Alabama, Secretary of War; Charles G. Memminger, of South Carolina, Secretary of the Treasury; Stephen R. Mallory, of Florida, Secretary of the Navy; Judah P. Benjamin, of Louisiana, Attorney-General; and John H. Reagan, of Texas, Postmaster-General. Mr. Toombs remained in the Cabinet but a few weeks. Mr. Walker left it in August, 1861, when Mr. Benjamin was transferred to the War Department. Later Mr. Benjamin became Secretary of State, and in November, 1862, James A. Seddon, of Virginia, was made Secretary of War.

In his inaugural address, Mr. Davis said: "We have changed the constituent parts but not the system of our Government. The Constitution formed by our fathers is that of these Confederate States. . . . We have vainly endeavored to secure tranquillity and obtain respect for the rights to which we were entitled. As a necessity, not a choice, we have resorted to the remedy of separation." The seceding States expected to have all necessary assistance from European powers in establishing their independence, and the chief grounds of this expectation were undoubtedly indicated in these passages of the inaugural address: "An agricultural people, whose chief interest is the export of a commodity [cotton] required in every manufacturing country, our true policy is peace and the freest trade which our necessities will permit. It is alike our interest and that of all those to whom we would sell and from whom we would buy that there should be the fewest practicable restrictions upon the interchange of commodities. . . . This common interest of producer and consumer can only be intercepted by an exterior force which should obstruct its transmission to foreign markets—a course of conduct which would be detrimental to manufacturing and commercial interests abroad." In the process of secession, it had become manifest that there was a strong Union element in most of the Southern States. With this element, especially in Georgia, the argument had been used that separation would be but temporary, and that all the States would probably unite again under a constitution so far changed as might be necessary to give the South all that it claimed. Mr. Davis said in his address: "It is not unreasonable to expect that the States from which we have recently parted may seek to unite their fortunes to ours under the government which we have instituted. For this your Constitution makes adequate provision; but beyond this, if I mistake not, the judgment and will of the people are,

that union with the States from which they have separated is neither practicable nor desirable."

The forts, arsenals, and other property in the Southern States belonging to the United States Government had been seized by the State authorities as each State seceded, with the exception of Forts Sumter and Moultrie in Charleston harbor and those at Pensacola. These seizures were acts of war, but the first gun was fired when Fort Sumter was bombarded for thirty-four hours, April 12, 13, and on the 14th the garrison surrendered and marched out with the honors of war. This battle created the most intense excitement in both sections of the country, and gave a definite form to the conflict which the congressional debates and political movements of many years had foreshadowed. President Lincoln, on April 15, issued a proclamation calling for 75,000 men to defend the flag of the republic, and appealed "to all loyal citizens to aid this effort to maintain the honor, the integrity, and the existence of our national Union, and the perpetuity of popular government, and to redress wrongs already long enough endured." Mr. Davis addressed his first message to the Provisional Confederate Congress on April 29. In this document he set forth elaborately the arguments for State sovereignty and the right of secession, with the grievances that in his opinion justified the Southern States in their action; he accused Mr. Lincoln of unconstitutional action in calling for an army to make war upon a foreign nation, without first obtaining the consent of Congress; he complained that his commissioners sent to Washington to treat for peace between the two countries had not been officially recognized; he recommended the immediate formation of an army of 100,000 men, and that he be authorized to issue letters of marque for privateers to prey upon the commerce of the United States; and in closing, he said: "All we ask is to be let alone—that those who never held power over us shall not now attempt our subjugation by arms."

In both sections of the country the call for troops was answered by the offer of more than could be accepted. In Virginia, the convention called to consider the question of secession at first refused to take such action. After the fall of Fort Sumter, another vote was taken, and the convention decided that the State should secede, provided the act of secession were ratified by a vote of the people on the last Thursday in May. Without waiting for this vote, the Governor immediately turned over to the Confederate Government the entire military resources of the State, and in May the Confederate capital, in accordance with Mr. Davis's advice, was removed from Montgomery to Richmond. The residence of James A. Seddon, in that city, was purchased for an executive mansion. The action of the convention was ratified by the people, though the western counties (now West Virginia) threw a heavy vote against it. The accession of Virginia necessarily brought North Carolina also. The Confederacy, as first formed, had consisted of South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas. Arkansas seceded on May 6, giving the Confederacy ten States, and it also claimed Tennessee, Kentucky, and Missouri, and admitted representatives from

those States to its Congress, though its authority was never established there.

Mr. Davis convened the Confederate Congress in Richmond on July 20. The Congress of the United States had convened on July 4, and had voted to raise 500,000 men and appropriate \$500,000,000 to carry on the war. Mr. Davis, in his message, asked for authority to raise a similar army; accused the National forces of flagrant and barbarous violations of the laws of war; congratulated the Southern people on their abundant harvests and the alacrity with which they had responded to the Confederate Government's call for a loan in cotton and provisions; and declared that "to speak of subjugating such a people, so united and determined, is to speak in a language incomprehensible to them." He had previously referred to the blockade of Southern ports by the National Government as a mere paper blockade, which he hoped the European powers would refuse to recognize; and he now cited this blockade, the non-intercourse by land, and the raising of a large army, as proofs that the United States Government was no longer able to keep up the pretense that it considered the secession movement a mere insurrection or riot on a large scale.

The next day (July 21) the Battle of Bull Run was fought near Manassas Junction, Va., between the National forces, under Gen. Irvin McDowell, and the Confederate forces, under Gens. G. T. Beauregard and J. E. Johnston. After a stubborn fight that lasted nearly all day, the arrival of fresh Confederate forces by rail from the Shenandoah valley, and their attack on the flank of the National army, turned the scale, and the defeat quickly resulted in a panic and disastrous rout, a large portion of the beaten army not stopping in the retreat until they arrived in Washington. The Confederates had already been accorded belligerent rights by the European powers, and this victory not only elated them with the hope of a speedy achievement of independence but gave them great prestige abroad. Gen. Johnston says it did them more harm than good, because it gave them a false idea of the task that was before them, while thousands of them, thinking the war was virtually over, left the army without permission and created a wide demoralization in the military forces of the Confederacy. It is probable, also, that it did much to prevent any European government from assisting the Confederates, by creating the idea that they did not need assistance.

In his message addressed to the Confederate Congress on Nov. 18, 1861, Mr. Davis congratulated the people of the Confederacy on their military successes at Bethel, Bull Run, Springfield, Lexington, Leesburg, and Belmont. All these (with the exception of Bull Run) were very small affairs in comparison with the battles that took place in the next three years; but they were the principal actions thus far fought, and compared well with the operations of such minor wars as Americans then living remembered, and Mr. Davis, from all that he could see, was fully justified in drawing from them the strongest hopes for ultimate military success. A more deeply significant part of his message was that which related to the blockade of the Southern ports, wherein it was evident that he was seriously dis-

appointed in the failure of European powers to declare it ineffectual and to disregard it. In an oblique manner, he shrewdly set before them the strongest arguments for interference: "We have asked for a recognized place in the great family of nations, but in doing so we have demanded nothing for which we did not offer a fair equivalent. . . . Perhaps we had the right, if we had chosen to exercise it, to ask to know whether the principle that 'blockades, to be binding, must be effectual,' so solemnly announced by the great powers of Europe at Paris, is to be generally enforced, or applied only to particular parties. When the Confederate States, at your last session, became a party to the declaration reaffirming this principle of international law, which has been recognized so long by publicists and governments, we certainly supposed that it was to be universally enforced. . . . Feeling that such views must be taken by the neutral nations of the earth, I have caused the evidence to be collected which proves completely the utter inefficiency of the proclaimed blockade of our coast, and shall direct it to be laid before such governments as shall afford us the means of being heard. . . . If, in this process, labor in the Confederate States should be gradually diverted from those great Southern staples which have given life to so much of the commerce of mankind into other channels, so as to make them rival producers instead of profitable customers, they will not be the only or even chief losers by this change in the direction of their industry. Although it is true that the cotton supply from the Southern States could only be totally cut off by the subversion of our social system, yet it is plain that a long continuance of this blockade might, by a diversion of labor and investment of capital in other employments, so diminish the supply as to bring ruin upon all those interests of foreign countries which are dependent on that staple."

There was a great deal of force in these considerations, and as the war proceeded and the blockade was made more and more effective, much suffering resulted among the laboring classes in England for lack of material to keep in motion the looms and spindles of Yorkshire and Lancashire. Strong pressure was brought to bear upon the British Government to induce it to recognize the Confederacy as an independent nation; but other and stronger considerations forbade. President Lincoln, in his letter of instructions to Charles Francis Adams, United States Minister at London, had said: "You will in no case listen to any suggestions of compromise by this Government, under foreign auspices, with discontented citizens. If, as the President does not at all apprehend, you shall unhappily find Her Majesty's Government tolerating the application of the so-called seceding States, or wavering about it, you will not leave them to suppose for a moment that they can grant that application and remain the friends of the United States. You may even assure them promptly, in that case, that if they determine to recognize, they may at the same time prepare to enter into alliance with the enemies of this republic." What complete destruction of British commerce would quickly ensue from such a complication, the British Government readily saw from the damage done to American commerce by a few

Confederate cruisers. John Bright, a powerful man among the working classes, was a firm friend of the Union, and continually counseled patience and non-interference. Certain English economists believed that cotton could be grown on a large scale in India, and welcomed the stoppage of the American supply till such an experiment could be tried. These and other considerations prevented the British Government from ever recognizing the Confederacy as anything more than an actual belligerent, a power that was attempting to gain independence, but had not achieved it.

In November, 1861, an election was held in the Confederacy, and Mr. Davis was chosen President, without opposition, for the term of six years. The first Congress of the permanent government met at Richmond, Feb. 18, 1862, and four days later he was inaugurated. In his address on this occasion, he repeated the argument for raising the blockade. "The world at large is concerned in opening our markets to its commerce. When the independence of the Confederate States is recognized by the nations of the earth and we are free to follow our interests and inclinations by cultivating foreign trade, the Southern States will offer to manufacturing nations the most favorable markets which ever invited their commerce. Cotton, sugar, rice, tobacco, provisions, timber, and naval stores will furnish attractive exchanges." He also set forth a new ground for hope, in the financial situation in the United States: "The period is near at hand when our foes must sink under the immense load of debt which they have incurred—a debt which in their effort to subjugate us has already attained such fearful dimensions as will subject them to burdens which must continue for generations to come." This was by no means an unreasonable argument, according to the views of the time. A few months later, when Mr. Lincoln proposed that the United States Government settle the slavery question by buying and emancipating the slaves, a committee of congressmen from the border slave States addressed a letter to him, in which, after setting forth that the slaves in those States would cost about \$478,000,000, they said: "We did not feel that we should be justified in voting for a measure which would add this vast amount to our public debt at a moment when the treasury was reeling under the enormous expenditures of the war." Yet when the war closed, the principal of the national debt was ten times that amount.

But about this time when the Confederate Government passed from its provisional to its permanent form, the superior resources of the loyal States began to tell, and the tide of military success to set against it. Late in August, 1861, a naval and military expedition sailed from Hampton Roads for Hatteras inlet, where in a few days, without the loss of a man, it captured the two forts with about 700 prisoners, and put an end to the use of that inlet by blockade-runners. A larger expedition sailed in October, and in November captured the defenses of Port Royal, giving the National forces a permanent foothold on the soil of South Carolina. In January, 1862, at Mill Springs, Ky., Gen. George H. Thomas gained a complete victory over a Confederate force under Gen. Felix K. Zollicoffer,

who was killed in the action; and in the same month about 2,000 men under Col. James A. Garfield defeated 2,500 Confederates under Gen. Humphrey Marshall and drove them out of Kentucky. These affairs were inspiring to the National cause, but were of small practical consequence in comparison with the capture of Fort Donelson and New Orleans. The Confederates had tried to establish a line of defense drawn from Columbus on the Mississippi eastward through southern Kentucky. It crossed the Tennessee and Cumberland rivers where they are but ten miles apart (Forts Henry and Donelson being constructed here), and passed through Bowling Green. Gen. Thomas had broken off the eastern end of the line at Mill Springs. In February, 1862, Gen. U. S. Grant disrupted it at the center by the capture of Forts Henry and Donelson, with over 14,000 men, and rendered the whole frontier untenable. Early in April he advanced up the Tennessee to Pittsburg Landing, where he was attacked by a Confederate army under Gen. Albert Sidney Johnston, and on the first day was worsted and forced back to the river; but heavy re-enforcements arrived at nightfall, the battle was renewed the next morning, Johnston was killed, and the Confederate army retreated to Corinth, whence it was afterward driven again by slow approaches. In that same month of April, a powerful naval expedition under Flag Officer David G. Farragut passed from the Gulf into the Mississippi river, bombarded and ran by the forts below New Orleans, and captured that city, which was by far the largest and most important in the Southern States. From that time till the end of the war, it was continuously held by the National forces.

The back door of the Confederacy was now open, there was no natural line of defense in the southwest, and whenever a powerful army should march by that route into the heart of the cotton States the new Government was doomed. But popular interest and the efforts of the two Governments were centered more upon the lines of the Potomac and the Rapidan, which lay between the two capitals. Here the largest armies were gathered, and here the bloodiest fighting took place. Virginia presented strong natural lines of defense, and the fact that these were skillfully and stubbornly guarded for a long time blinded the people of both sections to the fact that the Confederacy was fatally weak, that its area was steadily diminishing, and that its ultimate destruction was certain.

Early in 1862 a large army under Gen. George B. McClellan was landed at Fort Monroe and moved slowly up the peninsula to invest Richmond on the north. Late in June it was heavily attacked by the Confederate army under Gen. Robert E. Lee, and in a series of battles lasting a week made its way across the peninsula to a new base on the James. The siege of the Confederate capital was thus raised, the Southern people gained new courage, and a general demand was made for an invasion of the North. Lee's army, being relieved of an enemy in its immediate front, was launched out toward Washington, and near the old battle-ground of Bull Run met, late in August, a hastily collected army commanded by Gen. John Pope. The bloody second battle of Bull Run resulted in the

defeat of Pope, and Lee pushed on toward Maryland, the Confederates having a strong hope that the presence of his army would bring that State into the Confederacy, or at least gain many recruits for its ranks. But the Army of the Potomac under McClellan was withdrawn from the peninsula, sent in pursuit of Lee, and found him in the angle between Antietam creek and the Potomac, where (Sept. 17) was fought the bloodiest battle of the war thus far, excepting Shiloh. Lee retreated in the night, leaving his dead and many of his wounded on the field.

President Lincoln, who had determined upon emancipation of the slaves as a war measure, but was waiting for a victory before announcing that policy, now issued a preliminary proclamation, setting forth that on Jan. 1, 1863, all slaves in such States or parts of States as might then be in insurrection would be declared forever free, and that from that date colored men would be received as soldiers in the National army. On Jan. 1 the final proclamation was issued as promised. Mr. Davis replied with a proclamation (Dec. 23, 1862), wherein he accused Gen. Benjamin F. Butler of robbing the people of Louisiana and of murder in hanging one Mumford at New Orleans (for tearing down the National flag after the capture of the city), accused the United States Government of not treating privateers as prisoners of war (which was true), accused President Lincoln of declaring officially "not only his approval of the effort to excite servile war within the Confederacy, but his intention to give aid and encouragement thereto if these independent States shall continue to refuse submission to a foreign power after the first day of January next," and ordered that Gen. Butler be considered an outlaw, to be immediately hanged in case he was captured; that all commissioned officers serving with him be treated when captured as robbers and criminals; that negro slaves captured in arms should be delivered to the executive authorities of the States where they belonged; and that similar treatment be accorded to any captured commissioned officers of the United States who might be found serving in company with the armed slaves. With the exception of the clause relating to colored soldiers, these orders were not executed, though they had been approved by the Confederate Congress. In the same year (1862) the Confederate Congress passed a conscription law that placed in the military service all men between the ages of eighteen and thirty-five years. Mr. Davis signed it with reluctance, and it led to serious complications with some of the State authorities.

The failure of McClellan's peninsula campaign, and opposition to the policy of emancipation, caused the autumn elections of 1862 to go largely against the Administration; and this, together with the defeat of the Army of the Potomac at Fredericksburg (December, 1862) and Chancellorsville (May, 1863), gave the Confederates new hope of ultimate independence. But the emancipation proclamation had destroyed the last chance of foreign intervention, and this point proved to be the high-water mark of Confederate military success. After Chancellorsville there was a popular demand for another invasion of the North, and the Army of Northern Virginia crossed the Potomac, but with the National army

moving swiftly on an almost parallel line farther east. The two met at Gettysburg, Pa., and in a three days' battle (July 1-3) the Confederates were disastrously defeated. Meanwhile, a powerful army under U. S. Grant, after trying vainly to approach Vicksburg, Miss., from the north, had passed below it on the west side of the Mississippi, crossed to the east side, fought several successful battles, and driven the Confederate army into the city, where it was closely besieged, and on July 4 surrendered. The principal line of connection between the eastern and western sections of the Confederacy crossed the Mississippi at Vicksburg. A few days later, by the surrender of Port Hudson, the only remaining line was broken and the Confederacy was completely cut in two. In November, Gen. Grant gained another brilliant victory by driving away the army of Gen. Bragg from its position before Chattanooga, Tenn.

In his messages to Congress this year, Mr. Davis discussed the subject of foreign relations at great length, and complained bitterly of the action of England and France in recognizing the blockade and refusing to allow Confederate privateers to bring prizes into their ports. In consequence of this prohibition, most of the prizes were burned at sea, a few being released under bond to pay the value at the close of the war. They could not be taken into Confederate ports, because these were closely invested by the blockading fleets of the United States, yet large numbers of blockade-runners, built on purpose for this service, succeeded in eluding the blockaders and slipping into and out of the ports of the Southern States. By a law of the Confederate Congress, half of the cargo of every incoming blockade-runner must consist of munitions of war, and thus the Confederate armies were kept well supplied with the best that European arsenals could manufacture.

The effect produced by the emancipation proclamation was incidentally acknowledged in a paragraph that made a sharp retort upon Earl Russell, who had said: "In my opinion, the men of England would have been forever infamous if, for the sake of their own interest, they had violated the law of nations, and made war in conjunction with these slaveholding States of America against the Federal States." Mr. Davis's comment was: "The intimation that relations with these States would be discreditable because they are slaveholding, would probably have been omitted if the official personage who has published it to the world had remembered that these States were, when colonies, made slaveholding by the direct exercise of the power of Great Britain, whose dependencies they were."

Another subject discussed by Mr. Davis in these messages was the finances. The Confederate paper dollar had been maintained at par till November, 1861, from which time it declined steadily and rapidly in value till hundreds of them were required as the equivalent of one dollar in gold. Mr. Davis recommended a reduction of the currency and a tax on all values.

It was recommended that the conscription law be so far modified as to forbid the acceptance of substitutes, and to reduce the number of exemptions; and that every able-bodied man be placed in the ranks, details for wagoners, nurses,

etc., be stopped, and these duties be performed by men too old to carry muskets. This policy was adopted.

Through all the disasters that had begun to tell seriously upon the resources of the Confederacy, and the steady diminution of its area which foretold its final extinction, Mr. Davis never uttered any but hopeful words, or admitted for a moment that Southern independence was not to be the outcome of the war. Yet he had not been long in office before a strong opposition to his administration was developed. One of his severest critics was the Richmond "Examiner," edited by Edward A. Pollard, who afterward wrote the history of "The Lost Cause." In April, 1863, at the request of the Confederate Congress, Mr. Davis issued an address to the people of the South, in which he said: "At no previous period of the war have our forces been so numerous, so well organized, and so thoroughly disciplined, armed, and equipped as at present." Two or three months later the great disasters of Gettysburg and Vicksburg appeared to contradict this assertion, and the deplorable state of the finances increased the popular discontent. Mr. Davis was held responsible for the futile invasion of Pennsylvania, and it was said that his spirit of favoritism had kept an incompetent general (Pemberton) in command at Vicksburg, when the ablest of all the Southern generals (Johnston) was close at hand. Mr. Memminger resigned the secretaryship of the Treasury, and was succeeded by George A. Trenholm, of South Carolina; but the condition of the finances was past redemption, and food was becoming scarce, either from the loss of territory that had furnished much of it or from mismanagement in the commissary department, and the armies were subsisting on half rations.

Early in 1864 there were small Confederate military successes in North Carolina, Florida, and the Southwest, which, together with the failure of all attempts to capture Charleston by the sea approaches, gave Mr. Davis a basis for reassuring words in his message of May 2. But in his zeal for the Southern cause, and his anxiety to keep up the war spirit of his people, he did not confine himself strictly to the truth. He said: "Expeditions organized for the sole purpose of sacking cities, consigning them to the flames, killing the unarmed inhabitants, and inflicting horrible outrages on women and children, are some of the constantly recurring atrocities of the invader." In this there was not a syllable of truth; no such expedition had been organized. He recommended strongly that the credit of the Government be restricted to two modes; "the sale of bonds, and the issue of certificates bearing interest, for the price of supplies purchased within our limits."

Two days after the date of this message, two powerful armies were set in motion, between which the Confederacy was crushed in a little less than a year. One of these was the Army of the Potomac, now commanded by Lieut.-Gen. Grant in person, which crossed the Rappahannock and began a vigorous campaign against the Army of Northern Virginia. Gen. Grant's efforts to place his army between the Confederate army and the Confederate capital were thwarted, and a series of bloody battles and movements by the left

flank carried him to the James, which river he crossed (June 15, 16) and pushed on to Petersburg, because Richmond could not be immediately invested on the south, and all but one of the railroads that led to it centered in Petersburg. The remainder of the contest between the Eastern armies then took the form of a siege of Petersburg. The Western army, under Gen. William T. Sherman, moving south from Chattanooga, was opposed by a Confederate army under Gen. Johnston, a good strategist and cautious commander. Sherman alternately fought and moved by the right flank till he neared Atlanta, when suddenly, on July 17, Gen. Johnston was removed from command and was succeeded by Gen. John B. Hood, who was a reckless fighter but no strategist, and who left his intrenchments to assail the superior army of Sherman. The result was, that on Sept. 1 Sherman was in Atlanta, where he not only commanded the railroads centering there, but destroyed extensive works that had furnished the Confederates with munitions of war. Meanwhile the most efficient of the Confederate cruisers, the "Alabama," had been sunk in the English Channel (June 19) in a battle with the United States war-ship "Kearsarge," and a fleet under Farragut had entered Mobile Bay (Aug. 5), destroyed the Confederate vessels there, and rendered the forts untenable. The stringency of the blockade was constantly increasing, and the privations of the Southern people were very serious. All sorts of expedients were resorted to for the production of home-made goods, the most necessary medicines were often unattainable, and fever patients died for want of Northern ice.

Yet Mr. Davis, in his message of Nov. 7, 1864, admitted no cause for despondency, and still counseled courage and perseverance—as, perhaps, from his office, he was bound to do. He declared: "If we had been compelled to evacuate Richmond as well as Atlanta, the Confederacy would have remained as erect and defiant as ever. Nothing could have been changed in the purpose of its Government, in the indomitable valor of its troops, or in the unquenchable spirit of its people. . . . There are no vital points on the preservation of which the continued existence of the Confederacy depends. There is no military success of the enemy which can accomplish its destruction." He had previously visited Georgia, where he had addressed Hood's army and made speeches in the principal cities. Gov. Joseph E. Brown, of that State, was hostile to Mr. Davis's administration, partly on account of the conscription law, partly because of a dispute as to the power of appointing officers in Georgia regiments, and partly because of the general conduct of the war in that section. There was serious talk of separate action for peace on the part of Georgia, and there was also a strong peace party in North Carolina. Gov. Zebulon B. Vance, of that State, while urging Mr. Davis to negotiate for peace, deprecated any attempt at separate State action, saying: "Secession from the Confederacy will involve us in a new war—a bloodier conflict than that which we now deplore. So soon as you announce to the world that you are a sovereign and independent nation, as a matter of course the Confederate Government has a right to declare war against you, and President

Davis will make the whole State a field of battle and blood." Gov. Vance found the basis for this anticipation in the stern measures of repression that had been executed by the Confederate Government against the Unionists of western North Carolina and eastern Tennessee. Mr. Davis perhaps found some justification for his apparent determination to hope against hope in an expectation that President Lincoln would not be re-elected in November and the new Administration would either acknowledge the independence of the Confederacy or restore the seceding States to their place in the Union with new guarantees for the perpetuation of slavery. Clement L. Vailandigham, of Ohio, banished for disloyalty to the National Government, had assured the officials at Richmond that if the Confederates could hold out through that year, "the peace party of the North would sweep the Lincoln dynasty out of political existence," an expectation that was widely cherished in the Confederacy and freely expressed in the talk between the pickets of the opposing armies; but it was doomed to bitter disappointment, for Mr. Lincoln was re-elected by heavy majorities. Mr. Davis cautiously broached to Congress the subject of employing slaves (mentioning 40,000 as the desirable number) in higher capacities in connection with the armies, even to the carrying of muskets, and suggested that the Government should buy them of their owners, and give them their liberty as the reward of faithful service during the war. But this policy was not adopted.

In November, 1864, Sherman's army, having sent back to Chattanooga all the sick and disabled and all unnecessary luggage, cut its railroad connections with the North, and set out, 60,000 strong, on a march through Georgia to the sea. There was substantially nothing to dispute its progress; for Hood had gone off with the remnant of his army to attack the National forces under Gen. George H. Thomas at Nashville, where he was disastrously defeated in December, and Lee's Army of Northern Virginia was held in the trenches before Petersburg, confronted by the Army of the Potomac. Sherman subsisted on the country as he went along, cut a swathe forty miles wide, and reached the sea and captured Savannah in time to offer that city as a Christmas present to Mr. Lincoln. Setting out anew from Savannah, he marched slowly northward, causing the evacuation and fall of Charleston, though he did not visit that city, passed through Columbia, and reached North Carolina. Here, in January, 1865, Fort Fisher had been captured, which gave the port of Wilmington to the National forces, and a large reinforcement from the Western army, under Gen. John M. Schofield, was brought around by that route to Sherman. The Confederate Government had reinstated Gen. Johnston in command, and ordered him to get together what forces he could to oppose Sherman. He mustered about 30,000, and fought two battles in North Carolina, but with no success. While Sherman was marching through Georgia, a strong force under Gen. Philip H. Sheridan drove the Confederates completely out of the Shenandoah valley, and devastated the country there so that it could furnish no more subsistence to the Southern armies. Grant, by manœuvring and fighting, had cut off

the Weldon Railroad, and in March extended his left so as to seize the Southside Railroad, the last of those that centered in Petersburg. Lee's attenuated lines were then broken, and on Sunday, April 2, he telegraphed to Mr. Davis that he could no longer hold the position, and Richmond must be evacuated. His army retreated westward along the Appomattox river, closely pursued by the Army of the Potomac, and reduced to the verge of starvation. In one week (April 9) it was headed off and compelled to surrender. About a fortnight later Johnston's army surrendered to Sherman.

In his last message (March 13) Mr. Davis asserted the possibility of Confederate success, arguing that the men and means were ample if only they were fully and promptly used. On

the only function of government still in his possession, and open negotiations for peace. . . . The President said it was idle to suggest that he should attempt to negotiate, when it was certain, from the attempt previously made, that his authority to treat would not be recognized." After more discussion, Mr. Davis sketched a letter to be sent by Gen. Johnston to Gen. Sherman, proposing a meeting between the military commanders, to arrange the terms of an armistice to enable the civil authorities to agree upon terms of peace. Gen. Johnston sent the letter, and thereby opened the negotiations that led to the surrender of his army. But Mr. Davis did not wait for the answer; he pushed on at once to Charlotte, and thence continuing southward, overtook his family in Georgia. While they



JEFFERSON DAVIS'S RESIDENCE, BEAUVOIR, MISS.

receiving Gen. Lee's telegram, he at once left the church, and that evening, with his personal staff and some members of his Cabinet, he took the train for Danville. From that place he issued a proclamation (April 5) in which he said: "Relieved from the necessity of guarding particular points, our army will be free to move from point to point, to strike the enemy in detail far from his base." From Danville he went to Greensboro, N. C., where he met Gens. Johnston and Beauregard. Gen. Johnston says: "I represented that it would be the greatest of human crimes for us to attempt to continue the war; for, having neither money nor credit, nor arms but those in the hands of our soldiers, nor ammunition but that in their cartridge-boxes, nor shops for repairing arms or fixing ammunition, the effect of our keeping the field would be, not to harm the enemy, but to complete the devastation of our country and ruin of its people. I therefore urged that the President should exercise at once

were encamped near Irwinville, Irwin County, they were discovered and surprised, on the morning of May 10, by two detachments of National cavalry. Mr. Davis was taken to Savannah, and thence to Fort Monroe, where he was imprisoned.

In September the United States Senate called on the President for information concerning Mr. Davis's trial, and in answer reports were submitted from the Attorney-General and the Secretary of War, which expressed the opinion that Virginia was the proper place for the trial, and that it was not possible to hold a United States Court in that State. In April, 1866, the Judiciary Committee of the House of Representatives reported that there was no reason why the trial should not be had, and that it was the duty of the Government to investigate at once the facts connected with President Lincoln's assassination. On May 8 Mr. Davis was indicted for treason by a grand jury in the United States Court sitting at Norfolk, Va. The charge of

complicity in the assassination of the President was dropped. In June, at a session of the court in Richmond, Mr. Davis's counsel asked for a speedy trial, but the prosecution was not ready. On May 13, 1867, the prisoner was brought before the court on a writ of *habeas corpus*, and admitted to bail in the sum of \$100,000, his sureties being Horace Greeley, Gerrit Smith, and Cornelius Vanderbilt. A *nolle prosequi* was entered by the Government in December, 1868, and he was also included in the general amnesty that was proclaimed that month. Meanwhile, he had visited Europe, and afterward he became president of a life-insurance company in Memphis, Tenn. In 1871 he made a speech at Atlanta, Ga., in which he declared that he still adhered to the principle of State sovereignty, that he was confident of its final triumph, and that he was "not one of those who 'accept the situation.'" In 1879 he took up his residence at Beauvoir, Miss., on a small estate bequeathed to him by an old friend of the family. He was visiting in New Orleans at the time of his death. His second wife (who had been Miss Howell) and two daughters survive him.

The event of his death called forth eulogies from most of the Southern journals, and in the cities of the Southern States public emblems of mourning were displayed and public exercises held on the day of burial. The funeral in New Orleans was made the occasion of a large military and civic display; and the body was borne on a caisson, wrapped in a Confederate flag, with the United States flag waving over it. Subscriptions were at once set on foot for a monument to his memory. The custom of displaying at half-mast the flag on the War Department building at Washington when news is received of the death of an ex-Secretary was not followed in this instance. Mr. Davis published "The Rise and Fall of the Confederate Government" (2 vols., 8vo., New York, 1881), wherein he makes an elaborate argument in favor of the theory of State sovereignty, and defends himself against the various charges that had been brought against him. The most serious of these were: From Confederate sources, that by his pronounced favoritism, lack of judgment, and mismanagement, he had brought the cause of the South to ruin, when it might have been made successful; from Northern sources, that he was directly responsible for the unnecessary suffering in Southern military prisons and might have prevented it, if he did not plan it. He also left in manuscript a school history, to be published in 1890, and he had occasionally contributed to periodicals. Two biographies of Mr. Davis have been published. That by Frank H. Alfriend (New York, 1868) is friendly to him; while that by Edward A. Pollard (Philadelphia, 1869), which bears the subtitle "Secret History of the Confederacy," is inimical. See also Craven's "Prison Life of Jefferson Davis" (New York, 1866).

DELAWARE, a Middle Atlantic State, one of the original thirteen; ratified the Constitution Dec. 7, 1787; area, 2,050 square miles; population, according to the last decennial census (1880), 146,608; capital, Dover.

Government.—The following were the State officers during the year: Governor, Benjamin T. Biggs (Democrat); Secretary of State, John P.

Saulsbury, who died on May 10, and was succeeded by John F. Saulsbury by appointment of the Governor; Treasurer, William Herbert; Auditor, John H. Boyce; Attorney-General, John Biggs; Insurance Commissioner, Nathan Pratt, succeeded by Isaac N. Fooks; Chief Justice of the Supreme Court, Joseph P. Comegys; Associates, Ignatius C. Grubb, John W. Houston, John H. Paynter; Chancellor, Willard Saulsbury.

Finances.—The balance in the treasury to the credit of the various funds increased from \$44,793.48 on Jan. 1, 1888, to \$87,988.04 on Jan. 1, 1889. The largest receipts of the general fund were, from railroads, \$84,411.23; from clerks of the peace, for licenses, \$53,391.04; from sale of school books, \$1,720.28. The expenditures from the fund included \$10,250 for the executive department, \$16,295 for the judiciary, \$6,000 appropriated for colored schools, \$25,000 appropriated for free schools, \$2,600 for regular expenses of the State militia, \$8,787.79 for the annual encampment of the militia, and \$39,585 for interest on the State debt. No *ad valorem* State tax is levied upon property, the entire revenue being derived from taxation of railroads and licenses on manufacturers, peddlers, liquor dealers, and others. Nearly five sevenths of the revenue is paid by the railroads of New Castle County and the manufacturers of Wilmington. A controversy between the State and the Baltimore and Philadelphia Railroad Company, respecting the amount of tax that should be assessed upon the latter, was terminated in May, 1888, by a decision of the State Supreme Court, in favor of the State. It was adjudged that the company should pay \$36,101.69 annually, that being the sum assessed, instead of \$24,352.70 as claimed by the company. But the Legislature, by a special act this year, partially overruled the court by commuting the tax for the next two years to \$25,000 annually.

In accordance with the act of 1887, the Treasurer refunded successfully \$250,000 of 4-per-cent. State bonds into 3-per-cent bonds of the same value, this being a lower rate than the State has ever offered. On Jan. 1 the State debt amounted to \$824,758, to offset which permanent assets were held by the State amounting to \$673,050. During the year, in pursuance of the act establishing a State insane hospital, the Treasurer has issued 4-per-cent. bonds, increasing the debt by \$75,000.

Legislative Session.—The regular biennial session of the General Assembly began on Jan. 1 and ended on April 26. For the first time in recent years, the Republicans were in a majority in the Lower House, and on a joint ballot of both Houses (the Senate standing 7 Democrats and 2 Republicans, the House 7 Democrats and 14 Republicans), a successor to United States Senator Eli Saulsbury (Democrat) was to be chosen at this session. In the Republican caucus a prolonged contest for the nomination took place between four leading candidates—George V. Massey, Charles H. Treat, Nathaniel B. Smithers, and Anthony Higgins. On the first ballot Treat received 6 votes, Massey 5, Smithers 3, and Higgins 1. No choice was made until the forty-third ballot, when Higgins was nominated, receiving 9 votes to 6 for Massey. The Democratic caucus could not agree upon a candidate, the

Saulsbury faction supporting Alfred P. Robinson and the anti-Saulsbury men James L. Wolcott, their leader. In the Assembly, at its joint session on Jan. 16, Higgins received 16 votes, Wolcott 9, and Robinson 5, the first named being elected. Later in the month, Treasurer Herbert and Auditor Boyce (both Democrats) were re-elected, after a controversy in which the Democratic Senate prevailed over the Republican House. A local-option bill was defeated and a high-license bill passed at this session. The latter provides that in cities and towns of over 3,000 inhabitants, the license fee for an inn or tavern shall be \$300, and in other places \$200. Licenses to retailers of goods, wares, and merchandise are fixed at \$100, and druggists' licenses at \$20. "Every person licensed under this act shall keep his principal place of business so as to be seen fully and easily by passers-by, and shall not obstruct such view by screens, blinds, inside shutters, frosted glass, or any other device, under penalty of forfeiture of license and \$50 to \$100 fine." Druggists can sell only upon a physician's prescription, and but once upon that. They must keep a record-book of all such prescriptions for public inspection. The act of 1865 imposing a tax on commercial travelers from other States was repealed, its unconstitutionality being established. An act relating to telegraph and telephone companies imposes a tax of 60 cents a mile on the longest wire in the State, 30 cents a mile on the next longest, and 20 cents a mile on every other wire within the State. On failure to pay the tax, the Treasurer is authorized to distrain and sell the property of the delinquent company. By another act express companies are taxed 5 per cent. on their gross earnings from business wholly within the State, and upon refusal may be prohibited from doing business. It is also made unlawful for any company to increase its charges on account of the passage of the act. A revision of the law relating to peddlers largely increases their license fees. A peddler is defined by this act as any person "who drives a carriage, wagon, cart, or other vehicle from which personal property is retailed, or who carries a pack from which personal property is retailed." This bill was prepared by the Retail Grocers' Association of Wilmington, for the purpose of driving from business numerous itinerant peddlers. But in practice it has destroyed only the smaller peddlers, who are very poor and find in peddling their only support. It is claimed, also, that the section defining peddlers is broad enough to include icemen, the peddlers of coal-oil from wagons, and all cases where retail dealers solicit orders and deliver goods in wagons. The act has become very unpopular.

A valued-policy insurance law, similar to that in force in New Hampshire, was enacted, to take effect on Jan. 1, 1890. It provides that when real property is insured against fire, tornado, or lightning, and is wholly destroyed, without criminality on the part of the owner, the amount for which such real estate is insured shall be conclusively taken to be the true value of the property destroyed and the true measure of the loss. To every policy on real property hereafter issued there shall be attached an agreement stating the full value of the insured property, and if the

owner shall later secure other insurance upon a larger agreed valuation, both the earlier and the later policies shall be void. Provision was made for the first time to establish a State insane hospital. A board of trustees therefor was created and directed to purchase for \$75,000 the land and buildings at Wilmington used for insane persons by the trustees of the poor for New Castle County. To raise the sum the State Treasurer was authorized to issue and sell 4-per-cent. bonds of the State to the amount of \$75,000. An appropriation of \$14,000 annually was made for the support of the institution. The same board was authorized to purchase for \$8,000 property in Sussex County known as the Insane Department for that county, and to assume the management thereof for the State. The city charter of Wilmington was amended so as to allow biennial (instead of annual) elections, and women in that city were given the right to vote for school officers. Another act of the session declares that "hereafter no female convicted of any crime in this State shall be whipped or made to stand in the pillory." There was considerable discussion of bills providing for the calling of a constitutional convention, and for the introduction of the Australian ballot system, but they were both defeated. Other acts of the session are as follow :

Appointing commissioners who, in conjunction with similar commissioners from Pennsylvania, shall cause the boundary line between the two States to be resurveyed and re-established, and marked by enduring monuments.

Reincorporating the town of Camden.

Incorporating the towns of Ocean View and Cheswold.

Allowing the putative father to testify in bastardy cases.

Making valid the record of all unacknowledged or uncertified deeds dated prior to 1865.

Giving architects a mechanics' lien for labor and materials.

Punishing persons not members of the Grand Army of the Republic who use the insignia of that order.

Requiring all railroad companies to cause the approach of their engines to any grade crossing to be signaled by two long whistles followed by two short whistles at least three hundred yards from such crossing. [This act restores the whistle signal instead of the ringing of the bell.]

Imposing a penalty for employing, receiving, or enticing into a house of ill-fame any girl under fifteen years of age.

Requiring every owner, tenant, or occupier of land to destroy all Canada thistles thereon as often as is necessary to prevent them from going to seed. A penalty of five dollars is incurred for violation of this act.

Declaring "Memorial Day" to be a legal holiday.

Increasing to \$600 a year the fish commission appropriation for the hatching, propagation, and distribution of food fish.

To prevent the disfigurement of public and private property. (Making punishable the lettering or pasting of advertisements on rocks, fences, etc., without the consent of the owner.)

Providing that any estate, right, and interest in lands acquired by a testator after the making of his will shall pass in a manner as if possessed at the making of the will, unless it shall clearly appear that such was not the intention of the testator.

To provide for the proper burial of any indigent soldier, sailor, or marine who shall have served in the army or navy of the United States in any war in which it has been engaged, and who has been honorably dis-

charged, and who shall hereafter die within this State. [Appropriating \$25 for each case under the act.]

To prevent spurious sales in Wilmington, by swindlers having alleged bankrupt sale or damaged by fire or water clothing.

Providing a penalty for destroying or injuring the lamps, poles, wires, or other property of electric-light companies and for obstructing or interfering with the employes of such company in erecting or repairing its lines.

Requiring farmers' institutes to be held annually in each county.

Declaring all peach trees in lower Kent and Sussex infected with "peach yellows" to be common nuisances, and ordering their destruction by the owners. On petition of ten peach growers in any hundred, the Governor may appoint for such hundred three commissioners, whose duty it shall be to examine orchards where the disease is believed to exist, and to designate what trees should be destroyed. If the owner refuses to destroy them, the commissioners may do so, and the owner shall have no claim for damages.

Education.—The State holds in trust a permanent fund, which amounted on Jan. 1, 1889, to \$495,749, the income of which is expended for the benefit of public schools. From this and other sources, a State revenue of \$111,615.21 available for such schools was obtained during 1888, of which \$96,846.94 was disbursed to them during the same year. The Governor reports that the system adopted by the Legislature of 1887 of having county superintendents instead of a State and an assistant superintendent has produced good results. The county superintendents with the Secretary of State and the president of Delaware College form a State board of education, of which the president of Delaware College is *ex officio* president. No provision existed under this law for obtaining regular enumeration of school children or for collating statistics covering all schools; but the Legislature this year provided that such statistics should be gathered by the county superintendents and forwarded to the president of the State board. Since the appointment of President A. N. Raub in 1888, and the establishment of an agricultural experiment station, the Delaware College has made a striking advance in popularity. The number of students enrolled had reached sixty-one in September 1889, while two years before there were but seventeen attendants.

Insane Hospital.—The purchase of the Insane Hospital of New Castle County and its establishment as a State hospital, according to the legislative act of this year, was concluded in August. Before the close of the year over 130 persons had become inmates of the institution, about 100 being from New Castle County.

Militia.—The strength of the National Guard of Delaware on Jan. 1 was 576 officers and men, organized into one regiment of infantry and two troops of cavalry. On Jan. 1, 1888, the force numbered 568 officers and men. At an encampment held in July, 1888, near Wilmington, 506 of this number were present.

The Rodney Monument.—The General Assembly of this year appropriated \$500 to aid in the erection of a suitable monument over the grave of Gen. Caesar Rodney, a member of the Continental Congress, a signer of the Declaration of Independence, and one of the presidents of Delaware during the Revolution. A further sum of \$1,000 for the same purpose was collected

by an association of young men, known as the Rodney Club, through whose efforts the monument was completed in October. The unveiling took place at Dover on Oct. 30, in the presence of nearly all the State officials and with appropriate ceremonies, an oration being delivered by the Hon. Thomas F. Bayard. The grave of Gen. Rodney had hitherto been unmarked.

Poll Tax.—An important question affecting the validity of the act of 1873 relating to poll taxes, was argued before the State Supreme Court in June. By that act the levy court in case of poll taxes is directed to allow the tax collector as delinquencies, after a certain time, the taxes uncollected by him, "and the names of such delinquents shall be dropped from the assessment list by the levy court, and shall not be placed thereon again for a period of twelve months from and after the date of such allowance." The effect of this provision is to disfranchise for one year any person who has failed to pay his poll tax for the year preceding. It was urged that such a provision was unconstitutional. The decision of the court had not been made public at the close of the year.

DENMARK, a monarchy in northern Europe. The executive power is vested by the constitution of 1866 in the King and his responsible ministers, and the legislative power in an assembly of two chambers acting in conjunction with the sovereign. The upper house of the Rigsdag or Parliament is called the Landsting, and is composed of 66 members, of whom 12 are nominated for life by the King from among actual or former elected representatives, and 54 are chosen by indirect suffrage for the period of eight years. The lower house, called the Folkething, consists of 102 members elected by direct suffrage for three years. Every Dane is entitled to vote who has attained his thirtieth year and is not a recipient of public charity or a private servant having no household of his own.

The reigning sovereign is Christian IX, born April 8, 1818, who succeeded to the throne on Nov. 15, 1863. The heir-apparent is Frederik, his eldest son, born June 3, 1843.

The present Cabinet, constituted on June 11, 1875, consists of the following members: President of the Council, Jacob Brønnum Seavenius Estrup, Minister of Finance; Minister of the Interior, H. G. Ingerslev; Minister of Justice and Minister for Iceland, J. M. V. Nellesman; Minister of Foreign Affairs, Otto Ditlev, Baron Rosenørn-Lehn; Minister of War, Colonel J. J. Bahnsen; Minister of Marine, Commander N. F. Ravn; Minister of Education and Ecclesiastical Affairs, J. F. Seavenius.

Finances.—The annual budget is laid on the table of the Folkething at the beginning of every session. The annual financial accounts are examined by revisers elected by the Folkething and Landsting who make their reports to the two Chambers. Since the present Ministry came into office the Folkething has repeatedly rejected the financial laws presented by the Government, and the King has decreed each year a provisional budget by virtue of an article of the constitution authorizing him to promulgate laws when cases of urgent necessity arise during the vacation of Parliament. Such decrees require the approval of the Rigsdag at the next succeeding session.

The provisional financial laws have in each instance been confirmed by the subsequent action of the Landsting, and the Supreme Court has decided that the sanction of one branch of the Legislature is sufficient to give such decrees the force of law. The revenue for the year ending March 31, 1888, was 51,333,290 kroner (one krone is equal to 26 cents), and the expenditure 59,868,223 kroner, showing a decrease in the receipts of 3,436,311 kroner and an increase of 1,776,934 in the expenditures as compared with the previous year. The financial estimates for 1888-'89 contemplated an improvement in the revenue and a diminution of 3,988,518 kroner in the expenditures, reducing the annual deficit that since 1887 has taken the place of the recurring surplus of former years to 2,079,833 kroner. The Rigsdag must meet every year on the first Monday in October, and under ordinary conditions it concludes its labors in about two months. Since the constitutional crisis became acute, however, the session has invariably been prolonged to the end of the financial year. The budget is in the beginning of the session laid before the Folkething, to which the Government must in the first instance present all money bills. The revised estimates for 1888-'89 made the receipts 53,643,345 kroner, and the expenditures 56,077,068 kroner, not including supplementary appropriations demanded by the Government, which amounted to 13,000,000 kroner. Of this sum the Government announced that it had already spent 8,000,000 kroner that were assigned to the land fortifications of Copenhagen by authority of a royal decree of April 20, 1888, deeming it necessary in view of the critical European situation then existing. The Ministry of War has for sixteen years been busy with plans and estimates for the fortification of the capital, but has never been able to obtain the approval of the Folkething for the project, which the people have condemned with increasing majorities at each succeeding election. The fortifications were begun and carried on for years in spite of the protests of the majority. Friends of the Government offered private contributions to help complete the works and armaments. The plans for the new works were elaborated before Feb. 22, 1888, while Parliament was in session, and yet were not submitted to the Folkething. The Ministers, therefore, by the decree of April 20, laid themselves open to indictment, and yet the Opposition were unwilling to proceed against them, alleging that the Landsting would select only partisans of the Government from among its members to form, with the judges of the Supreme Court, the tribunal to try the indictment. The budget for 1889-'90 contained an appropriation of 3,599,000 kroner for the completion of the maritime defenses of Copenhagen, which was stricken out by the Folkething, as well as items for guns and arsenals amounting to about 1,000,000 kroner, and 1,000,000 kroner in the budget of the Ministry of Marine. The Government had created a gendarmerie by executive order, and decreed the appropriations for its support. In the session of 1888-'89 a bill was introduced for establishing a state police in the place of the gendarmerie, which was likewise rejected by the Folkething. On April 1, no agreement having been arrived at between the Folke-

thing and the Landsting in regard to the budget, the Rigsdag was closed, and a provisional financial law was promulgated by a royal edict for the fifth time. The decree empowering the Government to levy the existing taxes, and to expend what was necessary for carrying on the administration, contained a caution against exceeding the amounts of expenditure set down in the budget. The King authorized the Minister of War to expend 861,107 kroner for the gendarmerie, 480,000 kroner for artillery, 2,578,000 kroner for armaments for the maritime fortifications, and other sums that the Folkething had refused, and, likewise, gave the Minister of Marine authority to make extraordinary expenditures amounting to 1,595,315 kroner. A new Folkething met on Oct. 7, in which the majority against the Government was undiminished. The budget was submitted on the following day. The revenue was estimated at 55,000,000 kroner, and the expenditure at 59,000,000 kroner; the deficit of 4,000,000 kroner resulted from outlay on new railroads.

The public debt of Denmark consists of the accumulated deficits of the period preceding the establishment of parliamentary government, and of sums borrowed to construct railroads, harbors, and other public works. In 1870 the capital amounted to 234,740,700 kroner. It had been reduced to 173,838,612 kroner in 1880, but in the following year was increased to 203,471,121 kroner. At the close of 1888 the amount outstanding was 193,017,689 kroner.

The Army.—Under the military law of 1880 all able-bodied Danes are liable to serve from the age of twenty-two for eight years in the regular army and its reserve, and for eight years longer in the extra reserve. Five, six, or nine months of drill are exacted, according as the recruit belongs to the artillery, the infantry, or the cavalry. Those who are not sufficiently trained are subjected to a further period of drill. There are besides annual encampments for every corps, with exercises lasting from 30 to 45 days. The strength of the active army and reserve in 1887 was 335 officers and 16,318 men. Including volunteer bodies and the extra reserve, the total war strength is about 64,000 men.

The plan of fortifying Copenhagen on the sea and land sides, and of building forts and intrenched camps at other points at a total expense of 63,000,000 kroner, was laid before the Rigsdag in the session of 1882. The project, which had been worked out by a commission appointed in 1879, encountered much opposition, but was sustained by the recommendations of another commission, created in 1883, which was composed of officers of the land army exclusively. It is based on the calculation that the Danish army can hold the central citadel against the forces of a first-class power until another great power interested in maintaining the neutrality of Denmark should come to its assistance. Among naval officers the opinion prevails that two or three great warships and a large and efficient fleet of torpedoes would make it impossible for an enemy to land on the Island of Zealand without incurring heavy sacrifices, whereas if an army were landed and protected by a strong naval force Denmark's ally would be deterred by the same dangers from attempting to join the beleaguered Danish army in driving out the invaders.

The Navy.—The naval forces consisted in the beginning of 1889 of 32 steamers and 15 other vessels. The steamers comprised 8 ironclads, 3 protected cruisers, 1 torpedo-vessel, and 20 torpedo-boats. The "Helgoland," completed in 1880, has 12 inches of side armor, and carries one 36-ton and four 22-ton guns. The "Tordenskjold," protected by a belt of cork and watertight divisions, deck armor and a heavily-plated barbette, in which her 14-inch Krupp breech-loader is mounted, carries two torpedo-launches, and appliances for shooting Whitehead torpedoes. The other armored vessels were all built before 1872. The scheme for strengthening the national defenses that was presented to the Rigsdag in 1882 included additions to the navy to cost 9,000,000 kroner.

Area and Population.—The area and population of the kingdom, as determined by the last census, are shown in the following table:

DIVISIONS.	Square miles.	Population.
Copenhagen	7	234,850
Islands in the Baltic	4,025	865,678
Peninsula of Jutland	9,752	868,511
Faroe Islands	340	11,220
Total	14,124	1,980,259

The foreign-born population included 33,152 Germans, of whom 22,007 were born in Schleswig, 24,148 Swedes, and 2,823 Norwegians. The population of Copenhagen and suburbs in 1887 was 286,900. The number of births registered in the kingdom in 1886 was 70,030; deaths, 40,044; marriages, 14,834; excess of births over deaths, 29,986. The proportion of illegitimate births was 10 per cent. Emigration has been directed chiefly to the United States. The average annual emigration for the fifteen years preceding 1888 was 5,437. The number of emigrants in 1887 was 8,801; in 1886, 6,263; in 1885, 4,346; in 1884, 6,307; in 1883, 8,375; in 1882, 11,614. Of the total population in 1880 the proportion employed in agricultural pursuits was 46·9 per cent.; in manufactures, 22·9 per cent.; in mercantile pursuits, 68 per cent.; in navigation and fishing, 2·7 per cent.

Commerce.—The imports decreased from 288,514,845 kroner in 1883, to 211,613,697 kroner in 1886, and the exports fell off from 199,862,572 kroner in 1883, to 162,261,370 kroner in 1885, but recovered slightly in 1886, when the total was 166,746,742 kroner. The commerce of 1886 was divided among the main groups of articles as follow, the values being given in kroner:

CLASSES.	Imports.	Exports.
Articles of food	73,600,000	124,200,000
Textiles and clothing	36,700,000	5,400,000
Other manufactured articles	18,100,000	5,200,000
Raw materials	69,400,000	21,700,000
Means of production	13,800,000	10,300,000
Total	211,600,000	166,800,000

The imports of textile manufactures were 32,307,525 kroner in value; cereals, 25,946,547 kroner; metal manufactures, 17,166,162 kroner; timber and wood manufactures, 13,826,043 kroner; coal, 13,717,984 kroner; coffee, 8,164,488 kroner; sugar, 5,893,231 kroner; stones, 5,803,201 kroner; tobacco, 3,840,000 kroner. The ex-

ports of live animals were 40,865,524 kroner; butter, 33,302,520 kroner; hams, etc., 14,375,997 kroner; barley, 8,566,402 kroner; hides, 7,893,873 kroner; flour, 6,444,560 kroner; fish, 4,899,455 kroner; eggs, 4,030,121 kroner; wood manufactures, 3,273,326 kroner. There were 12,755 cattle imported and 96,889 exported in 1886. The imports of wool amounted to 2,428,000 pounds, and the exports to 4,200,000 pounds. Of sheep and goats, 29,092 were imported and 91,909 exported, and of hogs there were 26,531 imported and 252,489 exported.

The commerce was distributed among the principal countries as follow, the values being given in kroner:

COUNTRIES.	Imports.	Exports.
Germany	76,241,519	50,432,249
Great Britain	48,900,106	72,322,155
Sweden and Norway	35,545,120	30,780,603
United States	13,281,847	1,770,627
Russia	9,717,799	1,127,715
Netherlands	5,891,044	1,369,818
Danish Colonies	3,516,962	3,315,219
Belgium	4,143,288	2,065,996
France	4,009,098	1,529,959
Spain	889,091	316,147
Other American countries	1,102,744	16,675
Asiatic countries	1,354,075	792

The law of 1885 regulating the manufacture and sale of oleomargarine gave place on its expiration, in 1889, to a stricter law, requiring makers and dealers to report the quantities manufactured or sold to the police; to keep the article in oval barrels, labeled "margarine," with the name of the manufacturer and the percentage of butter, when mixed, marked on the barrel. Venders must advertise the fact that they deal in imitation butter by a conspicuous sign in their shops, and if one sells margarine for butter he is liable to a fine of from 200 to 4,000 kroner, and to imprisonment, with fine, for a repetition of the offense.

There were 3,324 vessels registered in Denmark and her colonies on Jan. 1, 1887, having an aggregate capacity of 272,500 tons. Of these 281, of 87,822 tons, were steamers. The number of vessels entered at Danish ports during 1886 was 21,472; the tonnage, 2,928,699; the number cleared, 21,130; the tonnage, 2,984,297. There were besides, 25,397 coasting vessels entered, and 26,485 cleared.

Railroads.—The total length of railroads in operation in 1887 was 1,214 miles. About 1,000 miles belonged to the Government, which had invested 144,192,180 kroner in railroads up to the beginning of 1886.

Posts and Telegraphs.—The number of letters and postal cards sent through the post-office in 1886 was 39,625,976; of newspapers, 42,573,856.

The telegraphic messages transmitted during 1886 numbered 1,283,900, of which 718,000 were internal, 538,000 international, and 27,900 official. There were 3,814 miles of telegraphs at the beginning of 1888, with 10,600 miles of wire. The number of telegraph stations was 364, of which 161 belonged to the State and the rest to railroad companies.

The Colonies.—The colonial possessions of Denmark consist of the islands of Iceland, Greenland, and the Danish Antilles.

Iceland has an area of 39,756 square miles, and contained 72,445 inhabitants in 1880. The population was once 100,000. Subsequently it fell away to 40,000, but it has risen to nearly 75,000. The area of cultivable land is yearly growing less, owing to the spread of volcanic matter over the valleys and plains. There has been some emigration to the northern parts of the United States, and recently the attention of the Icelanders has been directed to the fertile lands in Alaska, on the banks of the Yukon, where wood is abundant and the growing season is longer than in Iceland.

The Danish colonies in Greenland have an area of 46,740 square miles. The population of Northern Greenland on Dec. 31, 1885, was 4,414, comprising 2,119 males, and 2,295 females; Southern Greenland contained 5,500 inhabitants, of whom 2,557 were males and 2,943 females.

The Danish West Indian islands of St. Croix, St. Thomas, and St. John, have a combined area of 118 square miles, and 33,763 inhabitants, mostly free negroes, who are engaged in the cultivation of sugar.

DISASTERS IN 1889. The frequency of disasters caused by floods, winds, and the like, is one of the notable features of the list for the year. Not only is this true of America, where the storms have been of exceptional violence, but of Europe and Asia as well, while the ocean has repeatedly been strewn with wrecks, and the list of vessels not heard from is distressingly large. The following list is necessarily incomplete. In the case of railroad accidents, for instance, only those are reported where two or three lives have been lost, or where some peculiar circumstance renders the instance noteworthy. By far the greater number of casualties result from mishaps that cause the death or injury of only one or two persons. The disaster at Johnstown, Pa., was so remarkable in its magnitude and attendant circumstances that it is treated in a separate article. (See **JOHNSTOWN.**)

January 1. Fire in St. Louis, Mo., buildings of the Richardson Drug Company, estimated loss \$900,000. Steamboat Natchez sunk in Lake Providence, La.

2. Shipwreck: American brig Annie Hale founders off Cape San Antonio. Fire: British ship S. B. Horton burned at sea, 2 lives lost.

3. Railway: train derailed near Overbrook, Indian Territory, 100 cattle killed. Earthquake in Nicaragua, 8 lives lost.

4. Explosion: fire-damp in a colliery at Oviedo, Spain, 27 killed. Railway: collision near Medicine Bow, Wyoming, 1 killed, 2 injured, train and bridge burned.

5. Railway: collision near Carbon, Pa., 1 killed, 3 injured.

6. Heavy rains destroy much property in New England and New Jersey.

8. Railway: collision near Streator, Ill., 1 killed, 5 injured.

9. Tornado in Reading and Pittsburg, Pa., 33 lives lost. Old suspension bridge at Niagara Falls blown down. Train derailed near Brookhaven, Miss., 1 killed, 2 injured. Misplaced switch.

10. Destructive fire in Paris, France.

14. Railway: collision near Tallmadge, Ohio, 8 killed, 6 injured. Wreck took fire.

15. Shipwreck in the Indian Ocean. British steamer Phyapeket sunk in collision, 42 lives lost. Train wrecked by a land-slide near Ozark, Ark., 1 killed,

several injured. Three girls suffocated in a cigar-box factory in New York.

18. Explosion: fire-damp in Hyde colliery, near Manchester, England, 39 killed. Railway: collision near Kent, Ohio, 1 killed, several injured.

19. Train derailed near Elmwood, Mich., 3 killed, 4 injured. Broken rail.

21. Gale on north Atlantic coast, 7 sailors drowned near Boston.

24. Explosion in colliery at Nanticoke, Pa., 2 killed, 4 injured.

27. Explosion: steam-pipe on ocean steamship Republic, 10 seamen badly scalded.

February 1. Skating accident, three boys drowned near Paterson, N. J.

2. Fire in Buffalo, N. Y., 1 fireman killed, 19 injured, estimated loss, \$3,000,000.

3. Railway bridge breaks near Groenendaal, Belgium, 14 killed.

4. Shipwreck: Spanish steamer Remus founders off the Philippine Islands, all hands lost. Collision off Beachy Head, British bark Largo Bay sinks British steamer Glencoe, 54 lives lost. Collision off Dungeness, England, British steamer Nereid and British ship Killochan, 24 lives lost.

5. Drowned: a logging party on Pine Lake, N. Y., breaks through the ice, 7 men and 24 teams lost. Train derailed near Quincy, Ind., 2 killed, 1 injured.

8. Fire: theatre burned at Aldershot, England, many persons injured.

10. Fire in Philadelphia, buildings of John Wyeth, chemist, burned, loss about \$1,000,000.

11. Explosion: nitro-glycerin, near Williams Bridge, N. Y., windows of a passing train shattered, several passengers injured.

14. Shipwreck: hurricane at Samoa, men-of-war Trenton and Vandalia (American), Adler and Eber (German) lost in the harbor at Apia, also several merchant vessels, 147 lives lost.

15. Railway: collision near Livingston, Ala., 2 killed.

18. Explosion: cause unknown, in Park Central Hotel, Hartford, Conn., building destroyed, about 40 lives lost.

19. Railway: collision near Chicago, Ill., 2 killed, 4 injured.

22. Explosion of dynamite by students of Wesleyan University celebrating Washington's Birthday. A student badly hurt and two buildings damaged.

23. Shipwreck: bark Josie Troop, on North Carolina coast, 11 lives lost. Train derailed near Ralston, Pa., 1 dangerously injured, 15 slightly injured. Railway: collision near Boyds Siding, Mo., 3 killed, 2 injured. Misplaced switch.

25-27. Gale in the North Sea, 70 lives lost. Fires in four different places in the United States; 8 lives lost. Explosion in mining-squib factory, Plymouth Pa., 11 girls and 1 man killed.

27. Train derailed near St. George, Ontario, 10 killed, 30 injured. Shipwrecks: two vessels on English coast, 17 lives lost.

March 6. Railway: collision near Putnamville, Ind., conductor killed.

9. Railway: collision near Benfer, Pa., 1 killed, 2 injured.

10. Train derailed near St. Nicholas, Pa., 2 killed, 2 injured.

11. Boiler explosion in Cincinnati, 2 killed, 11 injured.

13. Colliery explosion near Wrexham, England, 20 killed.

14. Boiler explosion in Pittsburg, Pa., 5 killed, 11 injured.

15. Explosion of fire-damp in a mine at Nismes, France, 15 killed, 6 injured.

16. Shipwreck: American bark Pettengill on the Virginia capes, 14 lives lost. Railway: collision near Clifton, S. C., 2 killed, 3 hurt. Train derailed near Chico, Cal., 6 severely, and others slightly injured.

23. Train derailed—probably by malicious persons—near Nebula, Ga., 1 killed, 1 injured.

26. Railway: collision near Stockbridge, Ga., 1 killed, 9 injured.

28. Shipwreck: schooner Ruth Darling sunk by steamer Wyanoke off the Delaware capes, 2 lives lost. Train derailed near Queen City, Mo., 2 killed, 1 injured.

April 2. Railway: collision near Prickly Pear Junction, Montana, 3 killed. Collision near Centerville, Ind., 3 killed, 3 injured. Collision in St. Paul, Minn., 4 killed, 4 injured. Train derailed near Bellton, W. Va., 2 killed, 3 injured.

3-4. Prairie fires in Southern Dakota, many small towns and detached farm-houses destroyed, estimated loss, \$2,000,000.

4. Railway: collision near Brown's Cross Roads, Tenn., 3 killed.

5. Train derailed near Savannah, Ga., 2 killed.

6. Fire in Savannah, Ga., estimated loss, \$1,250,000.

8. Train derailed in Chicago, Ill., 1 killed, 9 injured. Fire in Soochow, China, many thousand lives lost. Storm in the Southern United States, much damage in Virginia, United States steamer Pensacola sunk at Norfolk Navy Yard, 50 vessels and more than 20 lives lost in Chesapeake Bay.

10. Railway: collision at Lorenzo, Ill., 5 killed, 3 injured.

19. Railway: collision near Glencoe, Ky., 6 injured.

24. Railway: collision, near Glen Mary, Tenn., 3 killed, 2 injured.

28. Train derailed near Hamilton, Ontario, 19 killed.

May 2. Railway: collision near Hancock, N. Y., 10 injured.

5. Railway: collision near Crystal Springs, Dakota, 2 killed, 2 injured.

8. Train derailed at Cleveland, Ohio, 1 killed, 7 injured. Railway: collision near Glen Mary, Tenn., 1 killed, 3 injured.

9. Colliery accident near Middleport, Pa., 10 killed.

16. Train derailed near Hank's Tank, New Mexico, 2 killed, 4 injured.

17. Shipwreck: American steamer Alaska founders off the coast of Oregon, about 30 lives lost.

18. Bridge partly burned near Nashville, Tenn., breaks under a train, 5 killed, 5 injured.

22. Floods in Bohemia, about 45 lives lost. Shipwreck: French fishing vessels lost at sea, 175 lives lost.

23. Train derailed—probably with malicious intent—near Sullivan, Mo., 36 injured.

28. Fire in Podhajee, Galicia, many lives lost. Railway: collision near Trumbull, Conn., 2 killed, 2 injured.

31. Flood: South Fork dam in Conemaugh valley, Pa., gives way, about 3,000 lives lost. (See under JOHNSTOWN, Pa.) Railway: train overtaken by flood at Conemaugh, Pa., about 26 drowned. Collision near Coalton, Ohio, 3 killed, 7 injured.

June 2. Floods in China, 6,000 lives lost. Fire in Seattle, Washington Territory, loss, \$5,000,000.

10. Engine derailed in St. Louis, Mo., 2 killed. Train derailed near Sugar Notch, Pa., 9 injured.

12. Railway: excursion train wrecked near Armagh, Ireland, 76 killed.

16. Train derailed near Batavia, Ohio, 15 injured.

19. Train derailed near New Cumberland Junction, W. Va., 2 killed, 8 injured.

26. Train derailed near Bledsoe, Tenn., 8 injured. Railway collision near Latrobe, Pa., wreck took fire, 12 killed, 6 injured.

29. Train derailed near New Haven, Conn., 3 killed, 5 injured.

July 2. Train derailed by a washout near Thaxton's, Va., 10 killed, 21 injured.

3. Explosion: fire-damp in a colliery near St. Etienne, France, 185 lives lost. Storm of great violence in the neighborhood of Titusville, Pa.

4. Railway: collision near Dubuque, Iowa, 1 killed, 5 injured. Train derailed near Ona, W. Va., 2 killed.

6. Railway: collision near Kennedy, N. Y., 2 killed, 3 injured.

8. Railway collision in Germany, 8 killed.

9. Flood in the Indus, India, 40 lives lost. Railway: collision near Ciulnita, Bulgaria, 15 killed.

10. Train derailed near Brandon, Vt., 8 injured. Railway collision near Pittsburg, Pa., 2 killed, 6 injured. Severe storm: dams burst near Johnstown, N. Y., 8 lives lost.

14. Dam breaks at Pittsburg, Pa., 2 men injured. Storm in Maryland, 5 lives reported lost.

17. Railway: collision runaway coal-cars near Shamokin, Pa., 2 killed, several injured. Destructive flood in Texas, several lives lost. Fire in Lowell, Mass., 120 horses burned.

18. Fire in Constantinople, 200 houses burned.

19. Lightning: at Standing Rock Agency, 2 Indians killed.

19-20. Storms of destructive force all over the United States.

21. Train derailed near Brunswick, Ga., 2 killed, 3 injured. Fire in a livery stable in New York city, 122 horses killed.

24. Explosion in a coal mine near Scranton, Pa., 2 killed, 6 injured.

26. Severe storms in the Northwest, destruction of crops by wind and rain.

27. Train derailed near Brighton, Tenn., 1 killed, 3 injured.

28. Floods in southern Hungary, Transylvania, and Bukovina, several hundred lives lost.

30. Violent storm on the North Atlantic, much damage on sea and shore. Dams break near Plainfield, N. J., many houses ruined, 6 lives lost.

31. Railway: collision near Ogletou, Ohio, 1 killed, 5 injured. Earthquake in Japan, 30 killed, 80 injured.

August 1. Railway: collision near Lorton, Va., 1 killed, 3 injured. Destructive floods in Pennsylvania, Maryland, and Virginia.

2. Railway: collision near Kenwood Junction, N. Y., 1 killed, 14 injured. Destructive gale in Virginia.

4. Railway: collision at Burnleys, Va., 2 killed, 4 injured.

5. Fire: town of Spokane Falls, Washington Territory, burned.

6. Train derailed near Weston, Neb., 2 killed, 3 injured.

7. Shipwreck, steamship Montreal. Total loss on Belle Isle.

10. Railway: collision near Forest Lawn, N. Y., 3 killed, 6 injured.

15. Destructive storm on North Atlantic coast and in the West.

16. Excursion train derailed by defective track near Sarver, Pa., 3 killed, 25 injured. Train derailed near Mt. Vernon, Ind., 13 injured. Fire in a Mexican mine, 2 unknown Americans perish in trying to save miners.

17. Train derailed near Lincoln, Neb., 18 injured.

19. Floods in Japan, estimated loss, 10,000 to 15,000 lives. Explosion: boiler of a steamboat near Shanghai, China, 30 killed. Fire in a tenement-house, New York city, 9 lives lost.

22. Train derailed near Moberly, Mo., 2 killed.

Railway collision near Meacham, Oregon, 1 killed, 4 injured.

23. Train derailed 22 miles south of Knoxville, Tenn., 5 killed, 26 injured (first passenger train over a new road). Railway: collision near Petroleum, West Va., 4 killed, 5 injured.

24. Train derailed near Pine Ridge Tunnel, Neb., 11 injured.

25. Dam bursts in Rhode Island, 3 drowned.

27. Earthquake at Kenzorik, Russia, 129 lives lost. Fire in Hopkinton, Mass., many buildings burned. Explosion: steam-boiler at Towanda, N. Y., 5 killed, several injured.

28. Earthquake in Russia, more than 100 persons killed and injured.

30. Railway: collision near Middleburg, Vt., 2 killed. Collision near Brooksville, Vt., 3 killed, 5 injured. Elevator falls in Philadelphia Hospital, 6 injured.

September 2. Forest fires in Montana, several villages burned.

5. Explosion in a colliery, near Penicuik, Scotland, 50 lives lost. Explosion: dynamite on a Government lighter on St. John's river, Florida, 1 killed, 2 injured.

6. Explosion: cartridges in Antwerp, Belgium, 200 killed, 500 injured, 20 missing, loss about \$7,000,000.

10-12. Storm on the north Atlantic, many shipwrecks and much coastwise damage, 40 lives lost at Delaware Breakwater alone.

13. Railway: collision near Washington, D. C., 1 killed, 5 injured.

15. Fire in Louisville, Ky., 6 firemen killed.

16. Railway: collision near Tioga Junction, Pa., 2 killed, 13 injured.

17. Train derailed near Atlanta, Ga., 3 killed (probably the result of malice). Disastrous storms in Delaware and eastern Pennsylvania.

18. Train derailed near Leo, Kansas, 3 killed, 3 injured.

19. Train derailed by fallen rock, near Clarksville, Tenn., 2 killed, several injured. Land-slide at Quebec, Canada, about 50 killed.

20. Electric car at Mission Ridge, Tenn., current fails and car descends slope, 1 killed by leaping, several injured. Shipwrecks: British cruiser *Lily* on the coast of Labrador, 6 lives lost; British steamship *Florence* founders in a gale in the Irish Sea, 9 lives lost.

22. Fire: business part of Kensington, Prince Edward Island, burned.

23. Railway: collision near Flagg, Ill., 1 killed, 6 injured.

24. Railway: collision near Auburn Park, Ill., 6 killed, 10 injured (engineer drunk).

26. Blast-furnace gives way in Pittsburg, Pa., several men badly burned by molten metal.

27. Railway: collision near Palatine Bridge, N. Y., 4 killed, 13 or more injured.

30. Railway accident in Italy, 50 persons killed and injured.

October 1. Shipwreck: unknown schooner on Lake Ontario, 8 lives lost.

2. Train derailed near Stuttgart, Germany, 10 killed, 50 injured. Destructive cyclone on the coast of Campeche, 34 vessels wrecked.

3. Explosion: steamboat *Corona*, on Mississippi river, 38 lives lost.

4. Train derailed near Shoals, Ind., 1 killed, 23 injured.

6. Hurricane in Sardinia, many persons killed and injured.

7. Destructive gale in the Irish Channel.

8-10. Floods in the Department of the Jura, France, much destruction of property.

11. Electric shock: lineman killed in New York city. Railway derrick breaks at Lansing, Mich., while clearing a wrecked train, 3 killed.

12. Shipwreck: collision at sea, British steamers *State* of Nebraska and Norwegian. Railway: train derailed near Wilmington, Del., 15 injured. Train derailed near North East, Md., 15 injured.

13. Fire: town of *Serpent River* nearly destroyed, 200 people houseless. Dr. Talmadge's *Tabernacle* burned in Brooklyn, N. Y. Train overturned by high wind near Farmington, Col., 7 injured.

14. Storm off the coast of New England, much damage to shipping.

15. Tramway accident in Cincinnati, Ohio, 6 killed, 2 injured. Railway: collision at Gibson, Neb., 1 killed, 15 injured.

16. Shipwreck: British steamer *Malta* stranded near Land's End. Explosion in an English colliery, 59 lives lost.

17. Scaffold falls at Easton, Pa., 3 killed, 5 injured. Railway: 3 men run over and killed on the Hudson River Railroad.

19. Train derailed near Confluence, Pa., 3 killed, 2 injured.

22. Explosion: locomotive boiler at Wellsbor-

ough, Ind., 2 killed. Railway collision at Nolin, Ky., 1 killed, 22 injured.

24. Gale on the Atlantic coast, many vessels stranded.

26. Railway: three men run over and killed while playing cards on track at Irwin, Pa. Railway: collision in Pennsylvania, 7 killed. Explosion: natural gas near Dayton, Ohio, 1 killed, 8 injured.

27. Storm on the Atlantic sea-coast, many vessels wrecked and several lives lost.

28. Explosion: boiler on board French steamer *Ville de Brest*, 5 killed. Shipwreck: British ship *Bolan* sinks at sea, 33 lives lost. Railway: collision near Greendale, Iowa, 2 killed, 3 injured. Explosion in a coal mine in Germany, 14 killed. Train of oil cars derailed at Kokomo, Ind., probably the result of malice. Oil caught fire, 3 killed.

29. Railway: collision near Otisville, N. Y., 2 killed, 2 injured. Storm: travel impeded in the West. Many vessels wrecked on the lakes and sea-coast.

29-30. Floods near Shanghai, China, hundreds of lives lost and thousands of people homeless.

30. Shipwreck: steamer *Cleopatra* and *Crystal Wave* sunk in collision off the Delaware capes. Railway: collision near Thaxton's, Va., 3 killed, 2 injured.

November 1. A building falls in Glasgow, Scotland, about 30 lives lost, many injured.

7. Shipwreck: American ship *Cheesborough*, on the coast of Japan, 19 lives lost. Explosion of dynamite in Spain, 4 killed, many injured. Fire in Petersburg, Va., estimated loss \$500,000.

8. Railway: collision near Altoona, Pa., 1 killed, about 40 slightly injured. Snow-storm in New Mexico, 5 lives lost, several hundred cattle killed.

11. Explosion of powder in Philadelphia, Pa., 3 killed. Floods in the Yang-tse-Kiang river, China, several thousand lives probably lost. Shipwreck: steamer *Queensmore* lost on Irish coast.

15. Shipwreck: Swedish bark *Hilna*, near Rio Grande, several lives lost.

19. Shipwreck: steamer tug *Fearless* in Umpqua river, Oregon, 15 lives lost. Floods in New York, Pennsylvania, New Jersey, and Maryland, much property destroyed.

20. Shipwreck: collision, American steamer *Manhattan* sunk by schooner *Agnes Manning* off coast of Delaware, 10 lives lost. Fire at sea: British steamship *Santiago*, all hands saved.

26. Shipwreck: Bremen bark *Germania* at Long Branch, N. J., 11 lives lost. Fire at Lynn, Mass., 296 buildings burned, 8,000 workmen idle, 126 families houseless, estimated loss, \$5,000,000. Explosion of natural gas in a private house in Dayton, Ohio, 1 killed, 8 badly injured.

28. Fire in Boston, Mass., estimated loss \$6,000,000.

30. Fire: Tribune building, Minneapolis, Minn., 7 lives lost, many injured.

December 2. Fire in Philadelphia, 7 lives lost.

8. Fire: pier of the National Steamship Line burned in New York, 4 killed, many injured.

9. Electric shock: a lineman killed in New York city.

10. Panic: cause, a false alarm of fire in a theatre in Johnstown, Pa., 12 killed, about 75 injured.

11. Cloud-burst in Santa Cruz County, Cal., several houses swept away, 1 man drowned. Gale at Jeanette, Pa., several houses blown down. Flood in Sacramento valley, California, much property destroyed, 2 lives lost.

14. Electric shock: a lineman killed in New York city.

17. Shipwreck: British bark *Tenby Castle* off Holyhead, 11 lives lost.

18. Shipwreck, collision: steamers *Leerdam* and *Gawquansier* sunk in North Sea, all hands saved.

19. Fire in Presbyterian Hospital, New York city, 4 firemen injured, 80 patients safely removed. Explosion on board tank steamer *Ferguson* at Rouen, 1 killed, several injured, \$150,000 damages.

20. Shipwreck: British steamer Cleddy sunk in the English Channel.

21. Explosion near Tomkins Cove, N. Y., 2 killed, 3 injured.

23. Mining accident: fall of rocks at Angel's Camp, Cal., 17 injured.

DISCIPLES OF CHRIST. The Missionary Convention of the Disciples of Christ comprises the meetings of the General Christian Missionary Society, the Foreign Christian Missionary Society, and the Christian Woman's Board of Missions. These are all voluntary organizations, formed for the prosecution of domestic and foreign missionary work. The meetings for 1889 were held in Louisville, Ky., Oct. 21 to 26. The General Christian Missionary Convention carries on the work of domestic missions in the States and Territories of the United States, where it co-operates with the State associations working under their own organizations. Hence the accounts of this work are double. The present meeting of the Convention was its fortieth. It had received during the year, including the balance at the beginning, \$50,692; had expended \$42,261; and had employed for whole or part time 50 agents, under whom 195 churches had been visited and assisted, 50 unorganized places visited, 24 new churches organized, and 703 persons baptized. Of the receipts, \$22,510 had been collected for the missionary fund, \$12,305 for church extension, \$1,767 for ministerial relief, and \$111 for the education of colored ministers. Reports from eight of the State organizations exhibited an average increase over the work of the previous year. The complete report of their work was for 1888. In that year the collections were \$97,417 by State boards and \$34,788 by district boards; number of men employed, for whole or part time, 223; number of churches visited and assisted, 2,005; number of new and unorganized places visited, 290; number of new churches organized, 147; number of churches assisted in building, 68. Adding the collections of the General Convention, the total collections for home missions in 1888 were \$159,315. A general evangelist had been employed who had visited Washington, Oregon, Utah, and Idaho, superintending the planting of missions in those Territories. Nothing had been done in the way of supporting colored missions, further than applying money contributed for the education of colored men for the ministry according to the wishes of the donors. The expediency of employing a general superintendent of missions and schools among these people was presented in the report of the board.

The Foreign Christian Missionary Society, now in the fifteenth year since its organization, had received from all sources, \$61,866; of which sum \$57,286 were contributed directly by the churches. It had expended \$60,409. It sustained missions in England (at London Liverpool, Birkenhead, and Cheltenham), Denmark, Norway, Turkey, Japan India, and China, and returned as approximate results of the work of its missionaries 30 stations, 42 missionaries (27 men, 15 women), 27 helpers, 617 conversions during the year, with a net gain of 453 members, 2,990 persons under the care of the society, and 2,861 persons in Sunday-schools. Seven new missionaries had been employed. The Christian Woman's

Board of Missions has an endowment fund of \$15,000, the interest of which is used to support its work in foreign fields. It had received during the year from contributions, \$36,279, or \$8,314 more than the receipts of the previous year. It supported, in whole or in part, nineteen missionaries, in India, Jamaica, and the western part of the United States. The report of children's work showed that the sum of \$5,000 contributed by the children had been expended upon a mission house at Bilaspur, India. An attempt is next to be made to build in the same city a hospital for free medical treatment.

DIVORCE. The involved and, in many instances, conflicting laws governing marriage and divorce in the United States, together with the evils resulting therefrom, have of late years been discussed with increasing seriousness. Wherein the remedy shall consist is doubtful. Whether it shall indeed lie in an amendment of the Constitution, as proposed in the Senate by Mr. Dolph, of Oregon, Dec. 12, 1887, by which "Congress shall have power to legislate upon the subjects of marriage and divorce by general laws applicable alike to all the States and Territories," or, as more succinctly stated in the House of Representatives by Mr. Springer, of Illinois, Jan. 5, 1889, "shall have power to make a uniform law of marriage and divorce," or whether, as suggested by Gov. Hill of New York at the opening of the legislative session of 1889, "some motion should be made toward a conference of representatives of all the States, or of such as may choose to be represented, to consider the question of uniform marriage and divorce laws," it is at least certain that the subject of divorce reform has assumed proportions that tend toward ultimate development.

The New England Divorce Reform League was partially organized at Boston, in January, 1881, and became the National Divorce Reform League, incorporated under the laws of Connecticut, in January, 1885. The question has also received attention from the National Bar and the several State Bar Associations, and has been freely canvassed in newspapers and periodicals. But the first and most important step in the interest of this reform was taken on March 2, 1887, when Congress empowered the Commissioner of Labor to collect the statistics of marriage and divorce throughout the country, a work completed and given to the public in 1889. Petitions for the collection of these statistics had been forwarded in 1884, bearing the names of representative men in different parts of the United States, and fortified by memorials from ecclesiastical bodies. The uniform language of the petitions set forth—

That the wide differences between the laws of the several States as to the causes of divorce and the jurisdiction of their courts over suits for divorce by or against non-residents, constitute an acknowledged element of confusion and uncertainty in American jurisprudence;

That these differences have led to many and distressing conflicts of judicial decisions, in cases turning upon the degree of faith and credit to be given to decrees of divorce under the Constitution and laws of the United States, or the comity of nations, so that a marriage is often treated at the same time in one State as dissolved and in another State or country as subsisting, and a man may be convicted of bigamy or

adultery in one jurisdiction upon what would be a lawful second marriage in another ;

That the ever-growing number of foreign immigrants who become American citizens, and thus subject marriages contracted abroad to the jurisdiction of our courts of divorce, or by a temporary return to their original domicile may submit American divorces to the test of examination by foreign tribunals, make these matters a not infrequent cause of collision in the administration of private international law ;

That the magnitude of these evils, their bearing upon our general social conditions, and the best methods of guarding against their increase, can be fully apprehended only by a careful collection and comparison of the facts and statistics of divorce ;

And that no attempt to obtain such statistics can hope for any considerable success unless it is made by the authority of the United States.

It was expressly understood that no constitutional amendment was intended to be asked, empowering Congress to legislate upon the subjects, but that a concerted action of the States, through their legislatures, was proposed. The Protestant Episcopal Church, in convention in Chicago, in October, 1886, also appointed a committee to call the attention of Congress to the importance and necessity of this step. Congress appropriated \$17,500 for the purpose of the collection, and no further expenses were incurred. By the report of the Commissioner of Labor, covering a period of twenty years, it is shown that the total number of divorces in the United States from 1867 to 1886, inclusive, was 328,716. This estimate covers 96 per cent. of the 2,700 counties of the United States and 98 per cent. of the population. The counties from which no returns were received were the most distant, inaccessible, and sparsely settled. Records of 6 per cent. of the counties (160) were within the period of time destroyed by fire—notably those of Cook County, Ill., in which Chicago is situated, Oct. 9, 1871, and Hamilton County, Ohio, containing the city of Cincinnati, March 29, 1884. A table exhibits the number of divorces from 1867 to 1886 by States and Territories. It should be understood that in South Carolina divorces are not allowed for any cause and in New York for the cause of adultery only. The increase from 9,937 divorces in 1867 to 25,535 in 1886 equals nearly 157 per cent. The estimated increase of population in the same period was 60 per cent. The States showing the greatest number of divorces in the twenty years are: Illinois, 36,072; Ohio, 26,367; Indiana, 25,193; Michigan, 18,433; Iowa, 16,564; Pennsylvania, 16,020; New York, 15,355; Missouri, 15,278; California, 12,118; Texas, 11,472; Kentucky, 10,248. The States and Territories showing the smallest totals are: South Carolina, 163; Arizona, 237; New Mexico, 255; Delaware, 289; Idaho, 368; Wyoming, 401; Montana, 822; Washington, 996.

Of the six New England States, Massachusetts had the greatest number of divorces, 9,853. That divorce is not in direct proportion to population is shown by the fact that Illinois, having a population in 1880 of 3,077,871, exceeds in divorces the State of New York, which had a population at the same period of 5,082,871. Missouri, differing by but 77 divorces from the total of New York, had, in 1880, a population of 2,168,380.

A table is also given, for the purpose of comparison, showing divorces granted in Europe for the same period of twenty years (1867-1886).

The total, as nearly as it can be reached, is 214,841. The country showing the largest number is France, with 57,115 for the twenty years. Great Britain in substantially the same period had 6,587. In six years Prussia had 19,778 divorces, and among the Greek Catholics of Russia for nineteen years there were 17,601. The little country of Switzerland makes the startling exhibit of 10,501 divorces in eleven years, while Norway for fifteen years had 546 only. Austria, in the last five years recorded 3,671; and Hungary, from 1876, 10,991. The total of the German Empire during six years was 34,082. Canada in eighteen years had 116. Denmark from 1871 to 1881, inclusive, had 6,202.

While the statistics of divorce for the United States collected by the Department of Labor are practically and exceptionally complete, those of marriages, also undertaken, are extremely deficient. Registration of marriages is enforced in but twenty-one States, and in many of these the returns are made incorrectly. It is therefore impossible, except in limited scope, to determine the number of marriages to one divorce. Of the six States (including the District of Columbia as a State) in which marriages were fully reported for the whole period of twenty years, the ratio is, Rhode Island, 11·11 marriages to each divorce; Connecticut, 11·32; Vermont, 16·96; Ohio, 20·65; District of Columbia, 30·83; Massachusetts, 31·28. But the variations of these ratios at different periods were considerable.

For the census years, 1870 and 1880, by a mathematical process resulting always, where test is practicable, correctly within one half of one per cent., the number of married couples is placed at 7,281,310 for 1870, and 9,464,908 in 1880. The divorces for the same years were 10,962 and 19,663, giving 664 married couples to 1 divorce in 1870, and 481 married couples to 1 divorce in 1880. Wyoming contained the smallest number of married couples to 1 divorce (123 in 1870, and 173 in 1880), and Delaware the largest (23,628 in 1870, and 5,542 in 1880). New Mexico, with 16,078 married couples to 1 divorce in 1870, also fell to 2,616 in 1880. Of the respective populations of the United States—38,558,371 in 1870, and 50,155,783 in 1880—there were 3,517 people to each divorce in 1870, and 2,551 in 1880. The increase of population in the decade was thus 30·1 per cent., and the increase of divorce 79·4 per cent., but three States and two Territories showing increase of population over increase of divorce—Connecticut, New York, Vermont, Utah, and Wyoming. The per cent. of increase from 1870 to 1880 in population and divorces is shown in the following table:

STATES.	Population.	Divorces.
Alabama.....	26·6	163·2
Arizona.....	318·7	2,200·0
Arkansas.....	65·6	310·6
California.....	54·3	129·2
Colorado.....	387·4	733·3
Connecticut.....	15·8	—16·0
Dakota.....	853·2	*
Delaware.....	17·2	400·0
District of Columbia.....	34·8	69·2
Florida.....	43·5	161·4
Georgia.....	30·2	114·4
Idaho.....	117·4	155·6
Illinois.....	21·1	81·6
Indiana.....	17·7	21·6
Iowa.....	36·0	75·6

STATES.	Population.	Divorces.
Kansas	173·8	179·7
Kentucky	24·8	54·1
Louisiana	29·3	268·3
Maine	3·5	68·1
Maryland	19·7	52·4
Massachusetts	22·3	47·3
Michigan	38·2	107·4
Minnesota	77·5	174·7
Mississippi	36·6	404·7
Missouri	25·9	89·4
Montana	90·1	171·4
Nebraska	267·8	560·0
Nevada	46·5	128·6
New Hampshire	9·0	116·0
New Jersey	24·8	51·7
New Mexico	30·1	790·0
New York	15·9	14·1
North Carolina	30·6	104·9
Ohio	19·9	56·6
Oregon	92·2	171·9
Pennsylvania	21·6	52·6
Rhode Island	27·2	35·6
South Carolina	41·0	*
Tennessee	22·5	139·4
Texas	94·4	382·2
Utah	65·8	40·2
Vermont	0·5	-15·9
Virginia	23·4	164·5
Washington	213·5	333·3
West Virginia	39·9	50·0
Wisconsin	24·7	35·1
Wyoming	127·9	61·5
The United States	30·1	79·4

* There were no divorces in Dakota in 1870, and none in South Carolina in 1880, hence the percentages can not be computed.

In cases where the minus sign is prefixed, the figures represent a decrease.

The system of comparison recommended by the Commissioner of Labor in considering the progress of divorce in the United States in the twenty years covered by his investigation is by successive quinquennial and decennial periods, by which we find that the increase of the fourth over the first quinquennial period is 119 per cent. for the whole country, Connecticut, Maine, and Vermont alone showing a decrease in divorce movement. Legislation of recent years in these three States has been restrictive of divorce. The increase in percentage of the fourth over the first quinquennial period is naturally largest in new States and Territories, especially in Dakota, which shows an increase of 6,691·7 per cent., owing to the phenomenal growth in population (853·2 per cent. from 1870 to 1880). The increase in Arizona was 3,275 per cent.; in New Mexico, 3,166·7 per cent.; in Colorado, 2,730 per cent.; and in Nebraska, 1,008·6 per cent. But, leaving these aside, as hardly fair bases of comparison, we find that of the New England States, New Hampshire has the largest increase, 109·1 per cent., while that of Massachusetts is 68·4, and that of Rhode Island 38·3 per cent. Of the Middle States, New York increased the least, 26·7 per cent., and Maryland the most, 88·2 per cent. In the Southern, Gulf, and Middle Southern States, the increase was more decidedly marked; Texas having increased 742·3 per cent.; Mississippi, 517·4; Alabama, 415·9 per cent.; Florida, 387·4 per cent.; North Carolina, 344·6 per cent.; Virginia, 174·9 per cent.; and Missouri, 150·1 per cent. Minnesota, of the Western States, increased 307·7 per cent.; California, 278·6 per cent.; Indiana, 36·6 per cent.; Illinois, 107·7 per cent.; Ohio, 88·9 per cent.; Iowa, 97·4 per cent.; Kansas, 352·7 per cent.; and Nevada,

13 per cent. The increase of the second decennial period over the first for the whole country was 69·2 per cent.

It is still disputed whether laxity of legislation exercises an influence on the increase of divorce, or whether this increase has its origin in social conditions. On the one hand, is cited the example of France, in which, prior to the adoption of the new code, divorces had in no year reached 3,000, but they rose to the number of 3,010 in 1883, to 4,478 in 1884, and to 6,245 in 1885, the population remaining for the time more nearly stationary than that of almost any other country. The report of the Commissioner of Labor, on the other hand, while showing that the statistics of divorce in the United States have at various periods yielded readily to more stringent legislation, and have increased where wider privilege was allowed, exhibits on the whole a progressive tendency of divorce for which statutory provisions do not account. A contemporary movement in the direction of increase appeared in Europe also. It is, moreover, to be observed that the 328,716 divorces granted within the United States in a period of twenty years represent, on an estimate, 484,683 applications for divorce. This gives 30 per cent. of petitions denied, and is evidence that the courts of our country are not careless in granting decrees or in weighing alleged causes, but that the allegations are, for the most part, well sustained. It is interesting to note that, of the 328,716 divorces in twenty years, 216,176 (or 65·8 per cent. of the whole) were granted to women, and 112,540 (or 34·2 per cent. of the whole) were granted to men, making a proportion of nearly two to one in favor of women. Classified by causes, in the twenty years the numbers of divorcees granted were:

Adultery, 38,184 to husbands, and 29,502 to wives.
Cruelty, 6,122 to husbands, and 45,473 to wives.
Desertion, 51,485 to husbands, and 75,191 to wives.
Drunkenness, 1,434 to husbands, and 12,432 to wives.
Neglect to provide, 7,955 to wives only.

Under the head of cruelty are included cases of mental suffering. The cause for which the greatest number of divorces was granted, it will be seen, is desertion, 38·5 per cent. of the whole. The total number granted on the surface for drunkenness, 13,866, or 4·2 per cent. of the grand total, do not and can not represent the entire number due to this influence. An examination, therefore, of forty-five counties in twelve States, as a basis, gives 5,966 out of 29,665 divorcees caused directly or indirectly by intemperance, representing 20·1 per cent.

The States in which the largest number of divorces were granted for adultery are New York, 13,977; Illinois, 7,266; Ohio, 5,447; Tennessee, 3,017; and Massachusetts, 3,014. For the same cause, Idaho had the least number, 25, and Arizona, New Mexico, and Wyoming each 29. In but two States, New York and Massachusetts, does the number of women obtaining divorce for adultery exceed the number of men. The largest number of divorces granted for cruelty were in Illinois, 6,527; in Ohio, 4,800; in Michigan, 3,540; and in Texas, 3,141. The least number, in North Carolina, was 27. Delaware and Florida present equal numbers, 33 for each. For desertion, there were 15,730 divorcees in Illinois, 9,963 in Ohio, 9,202 in Pennsylvania, 7,922 in Missouri, and 7,406 in Iowa.

In North Carolina there were 40 for the same cause; in Arizona, 88; and in New York, 160. For drunkenness, Illinois had again the largest number, 3,238, and Ohio 2,154. For this cause New York had 1 divorce in 20 years; Pennsylvania, 3; West Virginia, 4; Texas, 8. Six States show no divorce for this cause. For neglect to provide, Indiana, with 1,551 divorces, was followed by California, with 1,382, and Michigan, with 1,366. Florida, New Hampshire, and Texas had each one divorce, and in fourteen States there were none.

Considering the duration of married life before divorce in the United States, it is ascertained that the average is 8·97 years for the husband, and 9·27 years for the wife, giving for both as an average period, 9·17 years. The total number divorced in the twenty years after one year of married life was 15,622; after two years, 21,525; after three years, 27,270; and the largest number, after four years, 27,909. After twenty-one years or more of married life, 25,371 couples were divorced in the twenty years. In such instances, the duration lying between twenty-one and forty years, the average for husbands was found to be 27·47 years and for wives 26·70 years, making for both an average of 26·95 years of married life. Assuming, as nearly as it is possible for calculations to be made, that the average duration of married life dissolved by death is twenty-four years, the average married life of divorced persons before divorce is about two fifths of this. The average period between separation and divorce is found to be 3·02 years.

Of the 328,716 divorces granted from 1867 to 1886, 129,382 cases (39·4 per cent.) involved children to the number of 267,739, or an average of 2·07 per cent. to each couple; 101,913 decrees were granted to wives, and 27,469 to husbands, making the number of mothers with children suing for divorce nearly four times as many as of fathers with children. In 57,524 instances it was proved there were no children and in 141,810 it was unknown whether there were children, showing that children do not greatly influence the question of divorce.

As regards alimony, the facts are difficult to ascertain, but it is estimated that in 9 per cent. of all divorces in the United States alimony was secured.

That migration for the purpose of divorce is resorted to less frequently than is generally believed is shown by the report of the commissioner. Of 289,546 persons known to have been married within the United States divorced in twenty years, 231,867 were divorced in the same State in which they were married, and 57,679 (19·9 per cent.) in other States; nor can it be distinctly said that these 57,679 persons divorced in other States than where married, migrated for the purpose of divorce. The possible limit of migration in forty-five representative counties was found to be 36·9 per cent. Whereas it is frequently said that citizens of New York, living under severe divorce laws, migrate to Rhode Island and Pennsylvania to obtain divorces, it is shown by the report of the Commissioner of Labor that of 4,462 divorces granted in Rhode Island in twenty years, but 97 were married in New York, and of 16,020 granted in Pennsylvania, 765 were married in New York, and similar instances are

repeated. Comparing the general movement of the native-born population, it appears that in 1870 7,669,802 persons (23·2 per cent.) were living in other States than those in which they were born, and in 1880 9,593,106 (22·1 per cent.) were so living. The migration of divorced couples is thus less than the migration of native-born population at large, though, of course it is to be taken into account that in the one instance but a period of 9·17 years (the average interval of married life before divorce) is to be considered, and in the other, the number of years from birth. Legal requirements of residence before seeking divorce also render procurement by migration less feasible than is supposed. The shortest period allowed is in Dakota, ninety days. Arizona, California, Idaho, Nebraska, Nevada, New Mexico, Texas, and Wyoming, require alike six months, and other States require from one to five years. Louisiana, while not assigning a definite period, requires *bona fide* residence. Indiana, in addition to two years' residence in the State, requires six months in the county.

It was impossible to secure accurate or more than approximate estimate of the number of colored people seeking divorce. The number is placed at three fourths of the total number of divorces granted in States where the colored population is dense. City populations in our own country, as in Europe, are shown to be more given to divorce than those outside of cities.

In Europe the principal changes in the laws regulating divorce during the past twenty years were the removal of jurisdiction from the ecclesiastical to the civil courts, in Austria in 1868, and in Ireland in 1871. But in neither country is absolute divorce allowed to Roman Catholics. In France the law of July 27, 1884 revived absolute divorce, not permitted since 1816, and provided for the conversion of previously granted limited divorces (*séparations de corps*) into absolute. The German Empire, by law of Feb. 6, 1875, abolished perpetual separation, substituting absolute divorce for causes formerly authorizing such separation. In Switzerland a general law governing divorce went into effect on Jan. 1, 1876, each canton having previously been governed by its own laws. The laws of France, Germany, and Switzerland, now permitting absolute divorce, make no distinctions on account of religious belief, although affecting over 50,000,000 Roman Catholics.

Statutory causes for divorce in the United States are 42 for absolute, and 32 for limited divorce. The latter exists in nineteen States, and in three of these in favor of the wife only. The total number of limited divorces in the whole United States in the period of twenty years was 2,099. Marriage after absolute divorce is permitted without limitation in nine States and Territories, and with certain limitations and restrictions in nineteen others. In fifteen it is provided by statute that penalties for bigamy or adultery shall not extend to persons marrying after legal divorce, and for the remainder no provision is found upon the subject. Three States, Delaware, Maine, and Massachusetts, provide by statute that when an inhabitant of the State shall seek divorce in another jurisdiction for cause occurring within the State, or for a cause not authorizing divorce by law of the State, the

divorce shall be of no effect. Prohibitions as to remarriage are of force only within the State where decreed. Judgments of divorce in another State are recognized in the State of New York only where both parties personally appeared. Special provisions for defense of divorce are made by the States of Indiana, Kentucky, Louisiana, Michigan, Vermont, and Washington. In Kentucky a county attorney successfully resisting an application for divorce is allowed a fee of twenty dollars, to be paid by the husband. Causes barring divorce in a majority of the States and Territories are: Collusion, connivance, condonation and recrimination. Actions for divorce must be brought within periods of from one to ten years.

Recent Legislation.—By act of July 30, 1886, Congress prohibited the granting of divorces by legislatures of the several Territories. Individual legislation of States and Territories influencing materially the progress of divorce within the past few years may be briefly summed as follows:

Arizona.—Radical change of divorce law by code of 1887.

Arkansas.—Extension of causes for divorce to include "insanity after marriage," 1873.

Colorado.—Act of Feb. 16, 1881, making "Willful desertion and absence and departure from the State without intention of returning," previously a cause when committed by husband only, a cause when committed by either party, and adding cause: "When the husband, being in good bodily health shall fail to make reasonable provision for the support of his family for the space of one year." The period of two years' continuance of "habitual drunkenness" was also reduced to one year.

Connecticut.—Repeal, March 27, 1878, of old law permitting divorce for "any such misconduct as permanently destroys the happiness of the petitioner and defeats the purposes of the marriage relation."

Dakota.—Act of March 1, 1881, reducing the period of desertion from two years to one year.

Indiana.—March 10, 1873, act changing period of abandonment as cause for divorce from one year to two years, altering clause "failure of the husband to make reasonable provision for his family" by insertion of "for a period of two years," and striking out the "omnibus clause."

Maine.—Act of March 3, 1883, defining causes for divorce, previously left to discretion of court, prohibiting "the party on whose petition the divorce is granted from marrying again within two years after final decree, without the consent of the court," and providing that the party against whom decree was issued shall not marry again after two years without consent of court.

South Carolina.—Repeal, Dec. 10, 1878, of act of Jan. 31, 1872, legalizing judicial divorce for adultery or willful desertion of either party.

Utah.—Act of Feb. 2, 1878, requiring *bona fide* residence of one year within the county; defining cause for divorce, in lieu of previous omnibus clause, and compelling complaint or petition in writing, with oath of plaintiff; no decree to be granted upon default or otherwise, except upon legal testimony; and findings and decrees to be made and filed upon testimony only. This legislation was rendered necessary by the fact that for the years 1875, 1876, and 1877 Utah courts had become bureaus of divorce for citizens of other States, in consequence of the laxity of the law of March 6, 1852.

Vermont.—Law going into effect Jan. 1, 1879, providing that no divorce shall be decreed for any cause if the parties never lived together as husband and wife in this State; nor for a cause which accrued in another State or country, unless the parties before

such cause accrued lived together as husband and wife in this State; nor for a cause which accrued in another State or country, unless one of the parties then lived in this State. Act of Nov. 26, 1884, "to diminish the frequency of divorces," repealed Nov. 9, 1886.

West Virginia.—Act of March 6, 1882, requiring one year's residence in place of residence at time of filing suit.

DOMINION OF CANADA. The Hon. John Henry Pope, Minister of Railways and Canals, died during the parliamentary session of 1889, and in December Sir John Macdonald succeeded him as head of the Department of Railways and Canals, and the Hon. Charles C. Colby, M. P. for Stanstead, P. Q., entered the Cabinet as President of the Council.

Finances.—The Hon. George E. Foster, Minister of Finance, made his first budget speech on March 5. He showed the expenditure for the fiscal year 1887-'88 to have been \$36,718,494, or \$281,506 less than the estimate of his predecessor, Sir Charles Tupper. This left a deficit of \$810,031, but the expenditure included \$1,939,077 paid as sinking fund and investment for interest of sinking fund, otherwise the Finance Minister would have been in a position to show, instead of a deficit, a surplus of \$1,129,046. The items of capital expenditure were: Railways and canals, \$2,798,704; public works, \$1,207,111; Dominion lands, \$135,047; Northwest rebellion, \$539,929; total, \$4,437,460. On railway subsidies \$1,207,041 was spent, and on redemption of debt \$3,185,638. The net debt increased from \$227,313,911 on July 1, 1887, to \$234,531,358 on July 1, 1888. The minister estimated the expenditure for the current year, 1888-'89, at \$36,600,000, and the revenue at \$38,500,000. For the year 1889-'90 he estimated the revenue at \$39,175,000, and the expenditure at \$36,500,000. Comparing the present net debt, \$234,531,358, with the net debt in 1874, when the union of the provinces was completed, \$108,324,965, he pointed out that the burden of interest amounted in 1874 to \$1.34 per capita, and in 1888 to \$1.78. It must also be remembered that the Dominion had assumed as debts of the provinces, not created for federal purposes, \$106,472,033. The capital expenditure of the Dominion, almost entirely for public works, would exceed the amount of the purely federal debt by \$51,650,649. An unfair comparison is sometimes instituted between the United States debt of \$20.42 per capita of the population and the Dominion debt of \$47.16 per head of the population; it ought to be taken into consideration that the United States assumes no debts of its various States, and pays no State subsidies, whereas Canada has assumed provincial debts to the amount of \$106,472,033, has paid in subsidies to its provinces since confederation \$72,316,028, and in interest on the debts assumed for the different provinces at least \$70,000,000. Canada has also had to pay for penitentiaries, immigration, and quarantine, and the salaries of governors, which in the United States are provided for by the various States. The Dominion has also had to bear a much larger proportion of the cost of the militia and of the administration of justice than the United States.

Jesuit Estates Settlement.—In the "Annual Cyclopædia" for 1888, the act passed by

the Quebec Legislature for the settlement of the Jesuit estates claim is described in the article QUEBEC. The act, which attracted wonderfully little public attention while it was before the Quebec Legislature, and met with practically no opposition from the Protestant members of that Legislature, no sooner became law than it aroused a widespread demand for the exercise of the veto power by the Federal Government. On March 28, on motion for the House of Commons to go into Committee of Supply, Lieutenant-Col. O'Brien moved in amendment that—

Mr. Speaker do not now leave the chair, but that it be resolved, That an humble address be presented to His Excellency the Governor-General setting forth:

1. That this House regards the power of disallowing the acts of the Legislative Assemblies of the provinces, vested in His Excellency in Council, as a prerogative essential to the national existence of the Dominion.

2. That this great power, while it should never be wantonly exercised, should be fearlessly used for the protection of the rights of a minority, for the preservation of the fundamental principles of the Constitution, and for safeguarding the general interests of the people.

3. That, in the opinion of this House, the passage by the Legislature of the Province of Quebec of the act entitled "An act respecting the settlement of the Jesuits' estates" is beyond the power of that Legislature. First, because it endows from public funds a religious organization, thereby violating the undoubted constitutional principle of the complete separation of Church and state and of the absolute equality of all denominations before the law; second, because it recognizes the usurpation of a right by a foreign authority, namely, His Holiness the Pope of Rome, to claim that his consent was necessary to empower the Provincial Legislature to dispose of a portion of the public domain, and also because the act is made to depend upon the will and the appropriation of the grant thereby made as subject to the control of the same authority; and third, because the endowment of the Society of Jesus—an alien, secret, and politico-religious body, the expulsion of which from every Christian community wherein it has had a footing has been rendered necessary by its intolerant and mischievous intermeddling with the functions of civil government—is fraught with danger to the civil and religious liberties of the people of Canada. And this House therefore prays that His Excellency will be graciously pleased to disallow the said act.

As the Government had already refused to recommend the disallowance of the act, the adoption of this resolution would have been equal in effect to a vote of non-confidence in the ministry. An exciting debate took place, the most striking features of which were that C. C. Colby, who was considered to be essentially a representative of the Protestant minority in the Province of Quebec, opposed the resolution; and that Dalton McCarthy, one of the ablest supporters of the Government, for many years its chief legal adviser and known to be high in the personal confidence of Sir John Macdonald, vigorously supported the resolution. The main arguments adduced in favor of disallowance were that the act, by endowing a religious society, violates a fundamental principle of the Constitution, i. e., that all denominations shall be equal before the law and that there shall be no connection between Church and state; that by making the settlement conditional upon the sanction of the Pope, the Queen's supremacy is chal-

lenged; and that the incorporation of the Jesuits in Canada is unconstitutional. The Minister of Justice, Sir John Thompson (a Roman Catholic), supported the act on its merits. Most of the Protestant members who opposed disallowance took the ground that while the Jesuit act was in itself highly objectionable, it was yet clearly within the competence of the Quebec Legislature. The Liberal party, by the way, had always held that the veto should be exercised by the Federal Government only in the case of acts *ultra vires* of the legislature that passed them. The Conservative party, on the other hand, had exercised the veto freely without regard to any such limitations, holding that the courts, being competent to upset any provincial legislation that may be unconstitutional, the veto was manifestly designed to be applied to provincial acts that might be constitutional but not in the interests of Canada.

The amendment was negatived by a vote of 188 to 13 on the following division:

YEAS—Barron, Bell, Charlton, Cockburn, Denison, Macdonald of Huron, McCarthy, McNeill, O'Brien, Seriver, Sutherland, Tyrwhitt, Wallace—13.

NAYS—Amyot, Armstrong, Audet, Bain of Soulanges, Bain of Wentworth, Barnard, Beausoleil, Béchard, Bergeron, Bergin, Bernier, Blake, Boisvert, Borden, Bourassa, Bowell, Bowman, Boyle, Brien, Brown, Bryson, Burdett, Burns, Cameron, Campbell, Cargill, Carling, Carpenter, Caron (Sir Adolphe), Cartwright (Sir Richard), Casey, Casgrain, Chisholm, Choquette, Chouinard, Cimon, Cochrane, Colby, Colter, Cook, Corby, Coughlin, Coulombe, Couture, Curran, Daly, Daoust, Davies, Davin, Davis, Dawson, Desaulniers, Desjardins, Dessaint, Dewdney, Dickey, Dickinson, Doyon, Dupont, Edgar, Edwards, Eisenhauer, Ellis, Ferguson of Leeds and Grenville, Ferguson of Renfrew, Ferguson of Welland, Fiset, Fisher, Flynn, Foster, Freeman, Gauthier, Gigault, Gillmor, Girouard, Godbout, Gordon, Grandbois, Guay, Guillet, Haggart, Hale, Hall, Hesson, Hickey, Holton, Hudspeth, Innes, Ives, Joncas, Jones of Digby, Jones of Halifax, Kenny, Kirk, Kirkpatrick, Labelle, Labrosse, Landerkin, Landry, Lang, Langelier of Quebec, Langevin (Sir Hector), La Rivière, Laurier, Lépine, Livingston, Lovitt, Macdonald (Sir John), Macdowall, Mackenzie, McCulla, McDonald of Victoria, McDougald of Pictou, McDougall of Cape Breton, McGreevy, McIntyre, McKay, McKeen, McMillan of Huron, McMillan of Vaudreuil, McMullen, Madill, Mara, Marshall, Masson, Meigs, Mills of Annapolis, Mills of Bothwell, Mitchell, Moffat, Moncrieff, Montplaisir, Mulock, Neveux, Paterson of Brant, Patterson of Essex, Perley, Perry, Platt, Porter, Préfontaine, Prior, Purcell, Putnam, Rinfret, Riopel, Robertson, Robillard, Roome, Ross, Rowand, Rykert, Ste. Marie, Scarth, Semple, Shanly, Skinner, Small, Smith (Sir Donald), Smith of Ontario, Somerville, Sproule, Stevenson, Taylor, Temple, Thérien, Thompson (Sir John), Tisdale, Trow, Tupper, Turcot, Vanasse, Waldie, Ward, Watson, Weldon of Albert, Weldon of St. John, Welsh, White of Cardwell, White of Renfrew, Wilmot, Wilson of Argenteuil, Wilson of Elgin, Wilson of Lennox, Wood of Brockville, Wood of Westmoreland, Wright, and Yeo—188.

Fisheries and Trade Relations with the United States.—On motion to go into Committee of Supply, the Hon. Mr. Laurier, leader of the Opposition, moved in amendment that—

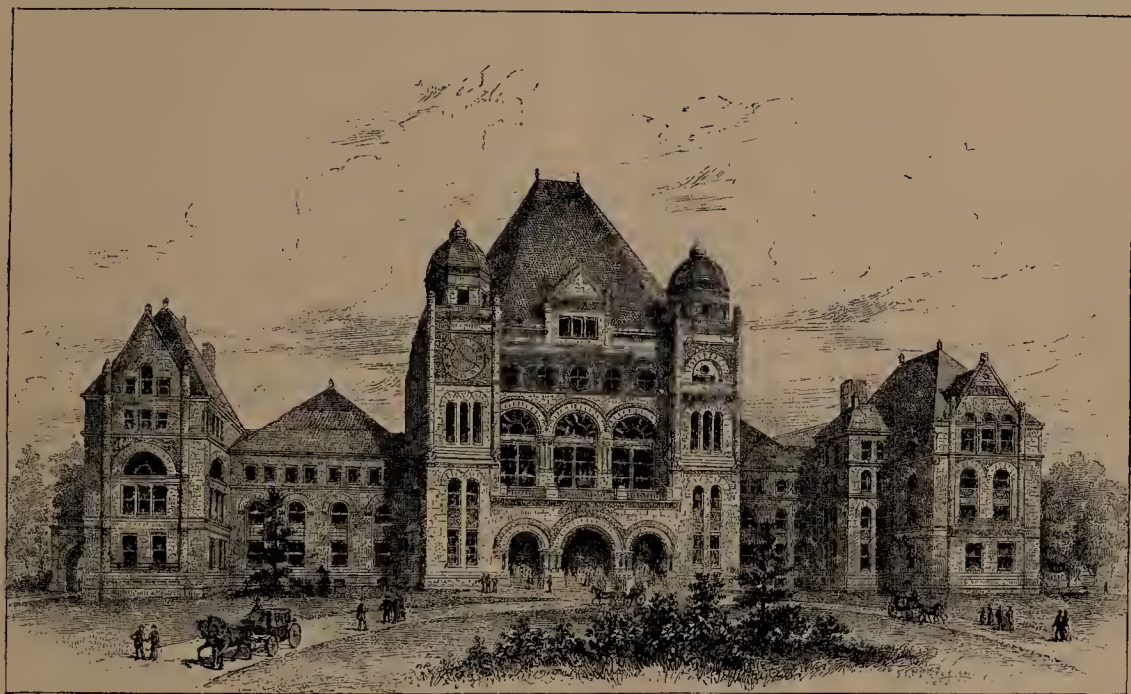
In view of the rejection by the Senate of the United States of the Washington Treaty of 1888, and the unfortunate and regrettable differences existing between Canada and the United States on the fishery and trade questions, this House is of opinion that steps should be taken, at an early day, by the Government

of Canada, for the satisfactory adjustment of such differences, and the securing of unrestricted freedom in the trade relations of the two countries, and that, in any negotiations entered upon for such purposes, Canada should be directly represented by some one nominated by its Government.

That, in the mean time, and to permit of such negotiations being favorably entered on, and to afford evidence of the anxious desire of Canada to promote good feeling and to remove all possible subjects of controversy, this House is of opinion that the *modus vivendi* proposed on behalf of the British Government to the Government of the United States with respect to the fisheries should be continued in operation during the ensuing fishing season.

Mr. Laurier claimed urgency for his resolution, on the ground that the proclamation of non-intervention threatened by the President of the United States was impending. Speaking for the Liberal party, he declared their belief that

newed. It was unfortunate that, after more than one failure of negotiations for giving the Americans access to our fisheries, they should have obtained that access by means of a money consideration. It was inevitable that when the term stipulated and paid for expired, the question would be reopened with increased bitterness. Then the Conservatives, when in opposition, had thought it honorable warfare, in order to make a point against the Liberal Government, to inaugurate a campaign of brag and bluster against the United States. In the maritime provinces they had said again and again that by building up a tariff wall Canada would, in a few years, bring the Americans to their knees and force them to grant reciprocity. Naturally, the Americans stiffened their backs and refused to give to threats what they might have been disposed to give to negotiations. Then the Government had



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the most satisfactory relations that ever existed between Canada and the United States, and between England and the United States, were those created by the Reciprocity Treaty of 1854. The time was not distant when the Conservatives to a large extent held the same views, in fact, these views had been made the basis of the national policy; but that policy, instead of tending in the direction of a reciprocity of tariffs, as had been claimed it would, had brought the two countries to the verge of non-intercourse and commercial war. He declared that throughout the American civil war the sympathies of the Canadian Government and of a large number of the Canadian people had been withheld from the side that was fighting for the right, and given to the rebels. The American Union, finding a hostile people on their borders, had cut off reciprocal trade relations with them, and with the abolition of the treaty all the old quarrels and all the old difficulties with regard to the fisheries had been re-

put the narrowest possible construction on the Convention of 1818; they refused to ship the fish of Americans in bond, seized their schooners for alleged or trivial offenses against the customs laws, and expected to bring down the Americans by that policy. The result was the Retaliation bill. It was not until Erastus Wiman (a Canadian in the United States with a true Canadian heart, a man honored with the daily abuse of the Conservative press), stepped to the front, constituted himself ambassador for Canada to the United States, and had an interview with Secretary Bayard, that the Government thought it fit and proper to move, and sent Sir Charles Tupper to Washington. After Sir Charles and Secretary Bayard had agreed upon a basis of settlement, a definite proposition made by the former was rejected by the American plenipotentiaries, simply on account of the policy that the Government had adopted in regard to the Fishery Treaty, and the irritation caused thereby in the United States.

He called upon the Government to reverse their policy of harshness and adopt a policy of conciliation, to admit that they had been in the wrong, and to endeavor to obtain reciprocity of trade, not by threats nor by acts of violence, but by negotiation and peaceable means. The hostility displayed in the United States toward England during the presidential contest was a blot on the fair fame of the United States, just as the hostility displayed during the civil war by England toward the United States was a blot on the fair fame of England. It behooved Canadians, connected geographically as they were with the United States, to help to create a better public sentiment between the two countries.

Sir John Macdonald declared himself unable to congratulate the leader of the Opposition upon the success with which he had shown Canada to be altogether blameable, and the United States altogether or nearly innocent of wrong—the sixty million people to have been trampled upon and oppressed by the five million. The Government declined to admit that they had been in the wrong. The treaty made last year with the United States showed that the President, the commissioners appointed by him, and the gentlemen who signed the treaty, all admitted that every one of the pretensions of Canada, every one of the arguments used by Canada, and every one of the positions taken by Canada, were just and right. The Americans admitted that they would have to pay for the privileges which before that treaty they contended were theirs by right, and the American fishermen willingly paid for those privileges. The honorable gentleman—a friend, like other cosmopolitans, to every country but his own—a few days before a new government was about to enter upon the administration of the affairs of the United States, with its policy undeclared, asked the Government of Canada to go upon their knees and admit that they had oppressed the United States and wronged the fishermen of the United States, and then, to quote Lord Chatham, say to the Americans, “Now make a treaty.” But the United States would say: “What is the use of making a treaty? You have conceded everything, you have given up all you contended for, and even what we admitted.” That was not the way the Government proposed to make treaties. The honorable gentleman had shaken the Non-Intercourse bill at the Government, as if they would be frightened at it. Canada discounted that non-intercourse threat a year ago. Suppose, however, that the Canadian Government issued licenses to the American fishermen up to February, 1890, and then they were told—say on March 4, 1889—that the Non-Intercourse bill was to go into effect, they would have opened the fisheries and the markets of Canada to the Americans and committed themselves to the whole extent of the *modus vivendi*, and at the same time we could not send a herring into the United States. Therefore the Government declared that they had that under consideration. The *modus vivendi* was an evidence, in the hands of the Canadian Government, of friendship and amity and of a desire for extended relations with the United States. At the first intimation on the part of

the United States of a desire to enter into enlarged trade relations, the Government would be only too happy to enter upon them, as well as on the more burning question of the fisheries. Canada did not stand alone. Newfoundland had its rights, and, as a matter of fact, had issued more licenses under the *modus vivendi* than Canada; and that important colony approved the Canadian policy in every respect. The Premier protested against the statement that during the civil war the sympathies of the people of Canada were with the South. He admitted that in England the sympathies of both the classes and the masses were with the South, but it was not so in Canada. Individuals had their own opinions, but the Government were again and again thanked by the United States Government for preventing this country's being made a base of operations against the United States. The people of Canada showed, by going and shedding their best blood and fighting for the cause of liberty and against slavery, that they were in sympathy with the United States. The cry brought up by the honorable gentleman that the Reciprocity Treaty of 1854 was denounced and terminated in consequence of the sympathy of Canada for the South, was a mere pretext. It was partly induced, no doubt, by a feeling of irritation against England, and the Americans thought that Canada, being a part of England, should pay part of the penalty. The Government were more than anxious to enter into the most free relations with the United States, but only so far as the interests of Canada would allow. The honorable gentleman knew that his motion was bound to be defeated in the House, but he (the Premier) was just as certain that it would meet with the indignant opposition of the whole people of Canada.

The amendment was negatived by a vote of 108 to 65.

Prevention of Combinations.—Mr. Clark Wallace succeeded in getting an act passed for the prevention and suppression of combinations formed in restraint of trade. The clause defining the offense reads as follows:

Every person who conspires, combines, agrees, or arranges with any other person, or with any railway, steamship, steamboat, or transportation company, unlawfully—

(a) To unduly limit the facilities for transporting, producing, manufacturing, supplying, storing, or dealing in any article or commodity which may be a subject of trade or commerce; or,

(b) To restrain or injure trade or commerce in relation to any such article or commodity; or,

(c) To unduly prevent, limit, or lessen the manufacture or production of any such article or commodity or to unreasonably enhance the price thereof; or,

(d) To unduly prevent or lessen competition in the production, manufacture, purchase, barter, sale, transportation, or supply of any such article or commodity or in the price of insurance upon person or property.

The penalty is a fine of not more than \$4,000 and not less than \$200, or imprisonment for not more than two years. In the case of a corporation being convicted, the fine is not more than \$10,000 and not less than \$1,000.

Unrestricted Reciprocity.—Sir Richard Cartwright, on March 19, on motion to go into Committee of Supply, moved an amendment that—

Mr. Speaker do not now leave the chair, but that it be resolved, That in the present condition of affairs, and in view of the recent action of the House of Representatives of the United States, it is expedient that steps should be taken to ascertain on what terms and conditions arrangements can be effected with the United States for the purpose of securing full and unrestricted reciprocity of trade therewith.

The amendment was negatived on the following division :

YEAS—Armstrong, Bain of Wentworth, Barron, Beausoleil, Béchard, Bernier, Borden, Bourassa, Bowman, Brien, Burdett, Campbell, Cartwright (Sir Richard), Casey, Casgrain, Charlton, Choquette, Chouinard, Cook, Couture, Davies, De St. Georges, Dessaint, Doyon, Edgar, Edwards, Eisenhauer, Ellis, Fisher, Flynn, Gauthier, Gillmor, Godbout, Guay, Hale, Holton, Innes, Jones of Halifax, Kirk, Landerkin, Lang, Langelier of Montmorency, Langelier of Quebec, Laurier, Lister, Livingston, Lovitt, Macdonald of Huron, McIntyre, McMillan of Huron, McMullen, Meigs, Mills of Bothwell, Mitchell, Mulock, Neveux, Paterson of Brant, Perry, Platt, Préfontaine, Purcell, Rinfret, Robertson, Rowand, Ste. Marie, Seriver, Semple, Somerville, Sutherland, Trow, Turcot, Walde, Watson, Weldon of St. John, Welsh, Wilson of Elgin, and Yeo—77.

NAYS—Audet, Bam of Soulanges, Baird, Barnard, Bell, Bergeron, Bergin, Boisvert, Bowell, Boyle, Brown, Bryson, Burns, Cameron, Cargill, Carling, Carpenter, Caron (Sir Adolphe), Chisholm, Cimon, Cochrane, Cockburn, Colby, Corby, Costigan, Coughlin, Coulombe, Curran, Daly, Daoust, Davin, Davis, Dawson, Denison, Desaulniers, Desjardins, Dewdney, Dickey, Dickinson, Dupont, Ferguson of Leeds and Grenville, Ferguson of Renfrew, Ferguson of Weldon, Foster, Freeman, Gigault, Girouard, Gordon, Grandhois, Guillet, Haggart, Hall, Hesson, Hickey, Hudspeth, Ives, Jamieson, Joncas, Jones of Digby, Kenny, Kirkpatrick, Labelle, Labrosse, Landry, Langevin (Sir Hector), La Rivière, Lépine, Macdonald (Sir John), Macdowall, McCarthy, McCulla, McDonald of Victoria, McDougald of Pictou, McDougall of Cape Breton, McGreevy, McKeen, McMillan of Vaudreuil, McNeill, Madill, Mara, Marshall, Masson, Mills of Annapolis, Moffat, Moncrieff, Montplaisir, O'Brien, Patterson of Essex, Perley, Porter, Prior, Putnam, Riopel, Rohillard, Roome, Ross, Rykert, Scarth, Shanly Skinner, Small, Smith of Ontario, Sproule, Stevenson, Taylor, Temple, Thompson (Sir John), Tupper, Tyrwhitt, Vanasse, Wallace, Ward, Weldon of Alhert, White of Cardwell, White of Renfrew, Wilmot, Wilson of Argenteuil, Wilson of Lennox, Wood of Brockville, Wood of Westmoreland, and Wright—121.

Customs.—An act was passed to amend the Customs act. The amending act provides that no goods shall be imported into Canada in any vehicle other than a railway carriage, nor on the person, between sunset and sunrise, or on a Sunday or statutory holiday, without a written permit from the Collector of Customs. That parts of any manufactured article are to be charged with the same rate of duty as the finished article, or a proportionate valuation. Special or general regulations of the Governor in Council for determining market values of imported articles to have the full force and authority of law. The fair market value of any goods must include any drawback allowed by a foreign government, and also the amount of consideration or money value allowed by the exporter on account of the goods being exported.

Post-Office.—Important amendments were made to the Post-Office act. The postage on "drop letters" delivered by carriers in the city where mailed is increased from one cent to two

cents an ounce. The Postmaster-General is authorized to establish a parcel post within Canada, and to arrange for a foreign parcel post.

Extradition.—Pending the arrangement of any treaty between Her Majesty and any foreign power for extending the provisions of the existing extradition treaties, an act was passed authorizing the surrender of fugitive criminals to foreign states, with or without treaty arrangements.

Public Acts.—The following public acts, not referred to in detail, were passed :

Granting supplies for financial year 1888-'89, \$2,090,177.23.

Granting annual subsidies to steamship lines: £15,000 for a monthly service, or £25,000 for a fortnightly service, between British Columbia and China and Japan, providing the United Kingdom subsidizes the line to the extent of £45,000 for a monthly or £75,000 for a fortnightly service. Also \$500,000 for a fast weekly service between Canada and the United Kingdom, making connection with a French port.

Granting subsidies in money and lands to railway companies.

Amending the Franchise act.

Amending the Civil-Service act.

Authorizing the expropriation of lands for public works.

Making it a misdemeanor to send an unseaworthy ship to sea, and imposing penalties for carrying grain cargoes without necessary appliances to prevent shifting.

Imposing penalties for overloading steam boats.

Prohibiting the use of salmon-nets, except in tidal waters.

Authorizing settlement of claim against Mennonite settlers.

Respecting bills of lading.

Prescribing 6 per cent. as the rate of interest on judgment debts in the Northwest Territories.

Making further provision for inquiries respecting public matters; authorizing the commissioner to compel witnesses to give evidence, and providing that witnesses are not to be exempted on ground of self-crimination.

Providing for the appointment of extra judges.

Against bribery and corruption in connection with municipal affairs.

Against frauds in the supplying of milk to cheese, butter, and condensed-milk factories.

Amending the Inland Revenue act, the General Inspection act, the Weights and Measures act, the act respecting certificates to masters and mates of ships, the Northwest Mounted Police act, the Dominion Lands act, the Copyright act, the winding up act, the Supreme and Exchequer Courts act, the Summary Convictions act, and the Summary Trials act.

DUPRÉ, JULES, a French artist, born in Nantes, France, April 5, 1811; died at L'Isle Adam, France, Oct. 6, 1889. His father, François Dupré, a native of L'Isle Adam, conducted a small porcelain manufactory at Parmain, and at the age of twelve this son was the principal porcelain painter in the *atelier*. In his leisure hours he wandered through the woods and fields, sketch-book in hand, studying without formula or guidance, directly from nature. At eighteen he went to Paris, where his talent was immediately recognized. Landscape art at that time, made chiefly from patchwork sketches, or *motivi* collected from different expeditions to the country and painted in the studio, was under contempt in France; but Dupré's canvases, which were direct copies of nature, speaking to the eye through their truth and beauty, and to

the soul with the subtle emotion and sensations that the artist felt while viewing the scene, were revelations, pointing not only to the glory of art and the future of the artist, but to the heart and secret of wonder-working Nature. Dupré studied in Paris, painted plates and dishes for his father, who had removed his manufactory to Coussac, made designs for an uncle, also a *faiencer*, and decorated clock-faces, which were made with automatic springs to move the pictures. In 1831 he sent his first contribution to the Paris Salon, and it was bought by the Duke de Nemours, for 12,000 francs. A graceful story is told of this work. After the establishment of the third republic, the Duke de Nemours, who had been exiled, returned to France, and among the first visitors to welcome him came Jules Dupré. During their conversation Dupré said: "Monseigneur, I can never forget that my first encouragement came from your Royal Highness." "I still keep the picture," replied the duke; "let us look at it." Standing before the canvas, which had kept its freshness and impressiveness, they gazed at each other, and after measuring out the years that had whitened their heads and seamed their foreheads, the duke, taking Dupré's arm, said: "Your art is happier than either of us; for it has not grown old." Dupré was invited to England in 1833 by Lord Graves, an amateur artist, and there made a series of excellent *croquis* in the neighborhood of Southampton. In that year he went to Berry with his brother Victor, Jules André, and Troyon, where he painted his famous "Femme récurant des chaudrons," exhibited in the Salon of 1835. The prevailing tone is yellow, and this canvas was painted in cadmium, a pigment first used by Decamps. This excited the especial admiration of Delacroix, and established a friendship between these two great masters. After the revolution of 1848, he was made a member of the commission to organize the Salon, and was also selected to collaborate with Eugène Lami in two pictures of the Republican victims of 1848, which appointment he accepted. In 1849 he was made an officer of the Legion of Honor. Dupré lived but a short time in Paris, but he spent the winters there from 1876 till 1882. For several years his studio was in the Abbey of Saint Pierre, in the forest of Fontainebleau. Afterward he removed to L'Isle Adam, where he was separated from his birthplace only by the river Oise. Here he was joined by his friend Théodore Rousseau, whom he had forced the public to acknowledge; here his power grew and reached its highest mark of expression, and here he worked diligently in his old age until his death which, in the words of his funeral oration—pronounced by M. Gustave Larroumet—was but the "consecration of his glory." One of Dupré's biographers says of him: "Without knowing him, we divine him from his pictures; grave and thoughtful, with a shade of sadness left upon him by the years of combat. He walks straight, his hand does not tremble, and the blue and gentle eye, in a most energetic head, betrays a chosen soul humbling itself before Nature in recognition of the tempests that she has let loose in its thoughts." In his later years Dupré became fascinated by the sea, and painted numerous beautiful marine views. Dupré was not only the last

survivor of the illustrious group of 1830—Delacroix, Rousseau, Diaz, Corot, Barye, Millet, Decamps, and Troyon—but he was their pioneer. He pointed out the source of nature as the true inspiration, and lifted landscape art to the height reached by Claude Lorraine, Ruysdaël, and Hobbema. How Corot estimated Dupré may be measured in the circumstance of his sending him a sketch marked "À finir par Jules Dupré," which Dupré, after making a few strokes, returned with the words, "À finir par Corot." It is interesting to compare Millet and Dupré, both of whom turned to Nature for their power, and viewed her from such different standpoints. The former paints the human element wrestling with the earth, to which it must return—men and women of the soil in their everlasting struggle to make her yield her increase for their sustenance. There is the smell of the upturned sod, the quiet beauty of the country, and the touch of a master-hand in every canvas, for, like the fabled giant Antæus, Millet gained in strength as he touched his mother earth. Dupré paints the splendors of creation: the brilliant, glorious sunshine that floods the fields, that smiles on hill and dale, or touches the thick forest with flecks of light; tall trees, lords of the forest, with their nervous, quivering leaves; the distant mountains; the "lazy-pacing clouds," sailing on the "bosom of the air"; the sun setting in a gorgeous panoply of sky; the terrible fury of the bursting storm-cloud: the somber mystery of the dark, dense forest; the "morn in russet mantle clad," stepping o'er the dew; the meadow-lands, green with grass and gay with flowers; merry dancing brooks; streams leaping over gray stones; rivers winding under arched bridges, near quaint French villages; and the wonder and sublimity of the ocean, sparkling in the sun, gray in the fog, and black in the tempest. His works include: Five landscapes (1831); "L'henne de la soupe"; "Vue prise aux environs d'Argenton"; "Vue prise aux environs de Paris"; "Vue de cour vallée de Montmorency" (1833); "Vue prise aux environs d'Argenton"; "Vue prise aux environs de Creuse"; "Vue prise aux environs de Châteauroux"; "Vue prise d'un intérieur de chaumière dans le Berry" (1834); "Vue prise dans les pacages du Limousin"; "Vue prise à Abbeville"; "Étude faite dans les bois de la Creuse"; "Vue prise à Southampton, England" (1835); "Vue prise en Angleterre"; "Intérieur du chaumière du Limousin" aquarelle (1836); "Pont du village de Saint Paul sur la rivière du Fay"; "Pont sur la rivière du Fay"; "Vue prise dans le Bas Limousin"; "Vue prise en Normandie"; "Les baigneuses"; "Animaux passant un gué"; "Vue prise dans les département de l'Indre" (1839); "Un Pacage"; "Soleil couchant"; "Entrée d'un hameau dans les Landes" (1852); "Passage d'animaux sur un pont dans le Berry"; "Forest de Compiègne"; "La gorge des Eaux-Chaudes"; "Basse Pyrénées"; "Une bergerie dans le Berry"; "La route tournante"; "La Vanne"; "Souvenir des Landes"; "Un marais dans la Sologne"; "Route dans les Landes"; "La Saulée"; "Le retour du troupeaux"; "Cours d'eau en Picardie" (1867); "La mendicante"; "L'Orage en mer"; "Coucher du soleil"; "Pacages du Limousin"; "L'Ecurie"; "Les Lan-

des"; "La Saulaie"; "Une marine"; "Allee d'arbres dans le parc de Stors"; "Les bagues échouées"; "La mare au soleil couchant"; "Dans la forêt de Compiègne." To the Paris Exposition of 1883 he sent "Les bords d'un ruisseau," "Le gué," "Le chêne et le marais," "Le métairie," "La forêt," "Un clair de lune," and "Un retour du troupeau." Two works, "Le soir" and "Le matin," are in the Luxembourg

Museum. His works in the United States include several "Landscapes," "Hay-Wagon," "Old Oak," "The Balloon," "Evening," "Cows in the Pool," "Scene near Fontainebleau," "Meadows with Stream," "Washerwoman," "Meadow," "Cows and Landscape," "French Village," "Pond," "River Scene," "Autumn Sunset," "Midday," "Shepherd Boy," "At Sea," and "Bright Day."

E

ECUADOR, an independent republic in South America. (For details having reference to area, provinces, and population, see the "Annual Cyclopædia" for 1888.)

Government.—The President is Dr. Antonio Flores, whose term of office will expire on June 30, 1892. His Cabinet is as follows: Minister of the Interior and of Foreign Affairs, Don Carlos R. Tobar; Minister of Finance, Don Francisco Campo; Minister of Public Instruction and of Justice, Don Elias Lazo; Minister of War, Gen. Julio Saenz. The Ecuadorian Minister at Washington is Don José Maria Caamaño, ex-President of Ecuador; the Consul-General at New York is Don Domingo L. Ruiz. The American Consul-General at Guayaquil is Owen McGarr.

Finances.—At the instigation of Dr. Antonio Jurado, who had been sent from Quito to London by a syndicate to secure from the Ecuadorian Government concession for the construction of a new railway, the foreign bondholders were, early in June, convoked in the latter city for the purpose of submitting to them informally certain proposals for conversion of the debt. The foreign debt, which has been in default for twenty-two years past, on June 1, 1889, stood as follows: Bonded debt, £1,824,000; accrued interest, £392,160; total, £2,216,160; foreign floating debt, £55,309; grand total, £2,271,469. The internal debt is \$4,820,648. A memorandum was drawn up between Dr. Jurado and a committee of bondholders which was forwarded to Quito; but as the conditions appeared too onerous, the Government sent a cable message to London rejecting the proposals. The home debt includes \$2,084,504 of paper money in circulation. The budget for the years 1889 and 1890, together, estimates the income at \$4,252,582, and the outlay at \$4,379,056. A law was promulgated on Jan. 1, 1889, authorizing the custom-houses of the republic to issue warrants to the owners of merchandise in bond, to enable them to raise money thereon in the open market. A decree was published in September, 1889, prohibiting the importation of Colombian dollars, as this money is inferior to the national coinage.

Army and Navy.—The strength of the permanent army in 1888 was 4,730 men. The National Guard comprises 68 battalions of foot, 9 of horse, and 2 batteries. By decree of the President, the instruction of army officers henceforth is to embrace target-firing and fencing.

The navy consists of one transport, one gun-boat, and one cruiser (both third class), mounting together six guns and being manned by 100 sailors.

Railroads.—The line of railway between Duran and Yaguachi was thrown open to traffic in 1888. Work continued actively on the railroad between Yaguachi and Sibambe in the direction of Quito. On the line between Guayaquil and Sibambe, which will be 184 kilometres in length, 102 are in running order, between Guayaquil and Chimbo. The Yaguachi-Quito Railroad Company succeeded in floating a loan of 9,000,000 francs in Europe.

Telegraphs.—The fifteen capitals of provinces are in communication with one another by means of a network of land lines that have 1,000 kilometres of wire, the number of offices being 33. The cost of telegrams has been reduced to 20 cents for the first ten words; each additional ten words, or fractions thereof, 10 cents.

Postal Service.—The number of items of mail matter handled in 1888, exclusive of newspapers, was 3,024,034. In January, 1889, the province of Guayaquil made a contract with Don Manuel Julian Cabos for the regular conveyance of the Ecuadorian mail between Guayaquil and the Galápagos Islands. In April the money-order system was organized between Quito, Guayaquil, Cuenca, Ambato, and Riobamba.

Commerce.—The imports in 1888 were valued at \$11,500,000, and the exports at \$11,100,000. The latter embraced 9,682 tons of cocoa, 555 tons of coffee, 290 tons of hides, and 173 tons of India-rubber. The American trade presents the following figures:

CALENDAR YEAR.	Import into the United States.	Domestic export to Ecuador.
1887	\$1,194,847	\$807,622
1888	812,472	862,665

There entered Ecuadorian ports in 1887, 550 sea-going vessels, 227 being steamers, and their joint tonnage was 253,947. The entries at Guayaquil alone were 204 vessels, of which 102 were steamers, the total tonnage being 137,083. In 1888 the tonnage of steamers arrived at the latter port had increased to 154,266, due to the establishment of a new Chilean steamship company in competition with the English line. Both coastwise and river navigation were thrown open to foreign flags in 1889. A chamber of commerce was established in Guayaquil in 1889.

Exclusion of Chinamen.—On Sept. 22, 1889, a decree was published prohibiting Chinese immigration.

Abolition of the Church's Tithe.—During the summer of 1889 the tithe of the Catholic Church was abolished, and an arrangement

made with the papacy to indemnify the Church by setting aside annually certain export duties henceforth to accrue to the benefit of the latter.

Earthquake.—A sharp shock of earthquake was felt at Santa Elena at 11.15 p. m. on March 2. It lasted about fifteen seconds, and was followed in a few minutes by four other shocks, each less violent than the preceding one. The direction was from east to west. Shocks were felt at intervals during the night and on the following day. Simultaneously the earthquake was felt at Guayaquil, the first shock being succeeded by thirteen others of less severity. Clocks were stopped, and the telephone wires were thrown down, causing a panic among the people.

Slavery.—Although the Indians are nominally free, they are in reality in a state of slavery; as a matter of fact, although by law the Indian is free, he is bought and sold, bequeathed by will, or seized by a creditor in payment of a debt, and is in no way distinguishable from a beast of burden. This state of things is brought about by the law that permits the Indian to sell himself into slavery when he is unable to satisfy his creditors in any other way. Once a slave, he is rarely able to extricate himself from his servile condition. His wife and children are also slaves. The family is allowed a miserable hut in which to lodge, and a small patch of ground barely sufficient to supply the food necessary to sustain life. A man who has thus sold himself into slavery is attached to the estate of his owner, and passes with it into the hands of the heir or purchaser, when it is transferred by death or sale. The greater number of the Indians of the interior are reduced to this condition, and live a life of the utmost degradation and misery.

EGYPT, a principality in northern Africa, tributary to Turkey. The reigning Khedive is Mohammed Tewfik, born Nov. 19, 1852, who succeeded his father, Ismail, on his abdication, June 26, 1879, when France and Great Britain intervened in behalf of the foreign creditors. The financial settlement then arranged and the costly administration by European officials introduced by the French and English comptrollers-general led to a military revolution in 1882. England intervened, defeated the rebellious army, overthrew the representative government set up by the revolutionary leaders, and restored the Khedive. A British army of occupation remained in the country, and the administration was placed under the control of English officials, chief of whom is the financial adviser of the Khedive. The joint control of France and England was formally abolished by a khedivial decree on Jan. 18, 1883. The European adviser of the Khedive has nominally no right to interfere in matters of internal administration, which are under the direction of the ministry, in which he has a consultative voice. Provincial boards, a Legislative Council, and a General Assembly, all elected by universal suffrage, were created in 1883, but these bodies, having merely advisory powers in matters of legislation, exercise no influence. In 1884 the police was reorganized, the jails were placed under the control of two directors-general attached to the Ministry of the Interior, and the magisterial functions of the mudirs or provincial governors was transferred to delegates appointed by a *procureur-général*, who

is attached to the Ministry of Justice. The gendarmerie, with the bodies of police created for the cities of Cairo and Alexandria, had a total strength of about 7,000 in the beginning of 1889. The Egyptian army was disbanded after the rebellion, and in December, 1882, Maj.-Gen. Sir Evelyn Wood was intrusted with the organization of a new army. The Egyptian army, in which there are about 60 English officers, had in 1889 a total strength of 9,400.

Area and Population.—Before the English occupation the dominions of the Khedive covered an area of 1,026,250 square miles, with 11,434,373 inhabitants. In 1884, under English compulsion, the Soudan and the Equatorial Provinces were abandoned and Wady Halfa was provisionally adopted as the southern boundary, reducing the area of the country to 12,976 square miles, with a population of 6,806,381 souls. Of the total area of 8,000,000 feddans 4,963,462 feddans are cultivated, 1,213,378 feddans are covered with canals, roads, date plantations, etc., and 1,823,160 feddans are marsh, river, lakes, and desert. The agricultural population forms about 61 per cent. of the whole, and the foreigners in 1882 were 1.34 per cent., but since then the proportion has increased considerably. Cairo, the capital, had 368,108 inhabitants at the census of 1882, and Alexandria 208,755.

Finances.—The total revenue is estimated in the budget for 1889 at 9,567,000 Egyptian pounds. The land tax and date tax are estimated to produce 5,233,000 pounds; railroads, 1,390,000 pounds; customs, 1,120,000 pounds; professional and urban taxes, 340,000 pounds; *octrois*, 310,000 pounds; Ministry of Justice, 310,000 pounds; posts, 231,000 pounds; salt and natron, 220,000 pounds; Alexandria port dues, 110,000 pounds; military exemption, 100,000 pounds; lighthouses, 95,000 pounds; navigation dues, 89,000 pounds; fisheries, 85,000 pounds; rents of Government property, 80,000 pounds; the pension fund, 70,000 pounds; telegraphs, 25,000 pounds; governorship of Suakin, 12,500 pounds; and other sources, 205,500 pounds. From the sum of all these items 490,000 pounds are deducted for possible non-collections. The total expenditure is estimated at 9,559,000 pounds. Of this sum the public debt absorbs 4,366,577 pounds; the Ministry of War, police, prisons, and army of occupation, 690,211 pounds; the tribute to Turkey, 678,397 pounds; railroads, 585,000 pounds; pensions, 500,000 pounds; Ministry of Public Works, 447,850 pounds; Ministry of Justice, 354,973 pounds; administration of the provinces, 336,417 pounds; suppression of the *corvée*, 250,000 pounds; posts, 200,639 pounds; Ministry of the Interior, 133,884 pounds; civil lists of Ismail Pasha, 128,833 pounds; Ministry of Finance, 127,292 pounds; Suakin, 109,000 pounds; customs administration, 93,340 pounds; civil list of the Khedive, 90,000 pounds; Ministry of Public Instruction, 69,846 pounds; other ministries, 116,739 pounds; salt and natron, 66,020 pounds; private cabinet of the Khedive, 60,000 pounds; *octrois*, 44,578 pounds; telegraphs, 35,000 pounds; lighthouses, 29,760 pounds; port of Alexandria, 19,872 pounds; fisheries, 11,381 pounds; navigation, 3,391 pounds; other expenses, 10,000 pounds. The revenue for 1888 was estimated at 9,567,000

pounds, and the expenditure at 9,559,000 pounds. In 1887 the actual receipts were 9,616,358 pounds, and the disbursements 9,207,900 pounds.

The International Commission appointed in 1880 to examine the financial situation estimated the annual revenue for 1882 and succeeding years at 8,411,622 Egyptian pounds. The debt was adjusted on this basis, 1,157,718 pounds being assigned to the interest and sinking fund of the privileged debt, which was secured on the railroad and telegraph receipts and the Alexandria port dues; 2,263,686 pounds to the service of the unified debt; 3,641,544 pounds to the administrative expenses of the Government; 681,486 pounds to the Turkish tribute; 193,858 pounds to payment of interest on the Suez Canal shares held by England; and 377,858 pounds to the Moukabala annuity, the Daira Khassa, and unforeseen expenses. The powers in 1885 guaranteed a new loan of 9,000,000 pounds sterling, bearing interest at $3\frac{1}{2}$ per cent., for the settlement of the Alexandria indemnities and the floating debt, and to provide £1,000,000 for irrigation works. Another loan of 2,300,000 Egyptian pounds, bearing $4\frac{1}{2}$ per cent. interest, was issued in May, 1888, for the purpose of paying off mortgages on Domains lands held by Ismail Pasha and members of his family and of redeeming pensions, imposing no additional charge on the revenue. The total debt on Nov. 30, 1888, was as follows:

DESCRIPTIONS OF DEBT.	Amount.
Guaranteed loan.....	£9,152,100
Unified debt.....	55,989,440
Privileged debt.....	22,296,800
Domains loan.....	5,578,420
Daira loan.....	8,636,480
Conversion loan.....	2,330,000
Total.....	£103,983,240

The Domains and Daira Sanich loans are guaranteed by the Domains and Daira estates, which are managed by commissioners for the benefit of the bondholders. The revenues, however, fall short of the amount of the interest, and the Government has to make good the deficiency, which is estimated for 1889 at 275,000 pounds. The new guaranteed loan calls for a fixed annual sum of £315,000, which provides for its gradual redemption. The interest and sinking fund of the conversion loan of 1888 amount to 130,000 pounds. Other debt charges, besides the interest on the preference and unified debts, are the Daira Khassa, an annual payment of 34,000 pounds to the Daira loan commissioners; 194,000 pounds of interest payable to England on the purchase money for the Khedive's Suez Canal shares in lieu of the dividends, which are mortgaged to the company till 1894; and the Moukabala annuity of 150,000 pounds. The interest at 4 per cent. on the unified debt amounts to 2,184,000 pounds, and the privileged or preference debt, on which 5 per cent. is paid, requires 1,087,000 pounds. When the new guaranteed loan was raised, the sinking funds of the other debts were suspended. The revenue since the British occupation began has exceeded the normal budget of the debt commissioners; but the expenditure likewise has gone far beyond their estimate, owing chiefly to the addition to the debt resulting from the military occupation and the expenses of operations in the Soudan. The

civil and financial administration can show some economies as compared with the time of the dual control. There has been a slight increase in the productive capacity of the country as the result of small improvements in the irrigation works. Reforms in the administration of justice have worked beneficially. A change in the dates for collecting the land tax so as to coincide with the harvest season and more thorough collections have benefited the revenue. None of the promised reductions of taxation have been effected, save a partial remission of the *octroi* duties. The partial abolition of the *corvée* is, as far as it goes, an advantage to the *fellaheen*.

The financial credit of the Government, owing not so much to the improved state of the finances as to the political connection with Great Britain, stands very much better than before the English occupation, when Egyptian securities were as low in the market as those of Turkey are now. With unified bonds at 90 in the spring of 1889, the credit of Egypt was higher than that of Austria or Italy. The English advisers of the Khedive considered it a favorable time for converting the privileged debt into 4- or $4\frac{1}{2}$ -per-cent. bonds, and thus effecting an annual saving of £150,000 or more. The bonds are not legally convertible, because the law of liquidation made them payable at par in semi-annual drawings extending over sixty-five years. The Egyptian Government desired the support of a legal opinion, and applied to the most eminent lawyers in England; but with one mind they all condemned the proposed operation as a breach of contract. Nevertheless, Riaz Pasha affirmed the absolute right of the Egyptian Government to pay off the bonds at par. The consent of all the powers, however, was requisite. Sir Edgar Vincent, financial adviser to the Khedive, and Baron Richthofen, Commissioner of the Caisse de la Dette, went to Europe to negotiate with the governments and with the bankers, and in May the Egyptian Government addressed a circular to the powers communicating the draft of a decree for converting the preference debt, reimbursing the $4\frac{1}{2}$ -per-cent. loan of 1888, and placing at the disposal of the Government £1,200,000 for the commutation of pensions and for constructing irrigation works intended to avert the disastrous effects of a low Nile for the future. Rothschild and Bleichröder signed the contract to provide the money for the conversion. The Governments of England, Germany, Austria-Hungary, and Italy gave their adherence to the project without reservation. Russia consented with the proviso that all the other powers should agree, and that the saving effected by the conversion should be applied to the redemption of the unified debt. To this the Egyptian Government agreed. The French Government expressed approval of the financial proposals, but pointed out that the excellent financial position of Egypt was evidence that order was restored, and that thus the condition that England had laid down for the evacuation of Egypt was fulfilled, and therefore made its consent conditional on receiving assurances of the intended withdrawal of the British troops. What was desired was a renewal of the promises made by Gladstone and repeatedly confirmed by Salisbury. But the British Premier would not reaffirm the engage-

ment that he had previously accepted as binding. In his reply to the French position, communicated by M. Waddington, he simply declined to discuss the question of evacuation in connection with the Egyptian conversion scheme, at the same time pointing to the advance of the der-vishes, which occurred opportunely, as a proof that the presence of English troops was necessary for the security of Egypt. In responding to a speech of Lord Carnarvon in the House of Peers, who urged the Government openly to declare Egypt to be a British dependency, he revealed in veiled diplomatic terms the intention to continue the tutelage until circumstances would admit of annexation.

I have not been able to agree with the suggestion of my noble friend that the guardianship of this country over Egypt has been otherwise than beneficial, or that we have not obtained such a measure of success as we have a right to expect. I need not go further and say that the withdrawal of this country from Egypt would be attended with evil to Egypt. When my noble friend goes beyond the criticism of the past or the examination of the present condition of Egypt and the effect of the measures which this country has sanctioned or encouraged and asks us to penetrate into the future and say what the future relations of this country and Egypt are to be, I must respectfully ask the house to allow me to decline. We have again and again explained what in our judgment are the obligations which bind us to Egypt, and which we have intended to fulfill, and when my noble friend says there has been vacillation or the semblance of vacillation, I again can not admit that the charge is sustained by any evidence or any particulars. If my noble friend will do me the honor to refer to the account which I gave four years ago of the policy which the then incoming Government thought it their duty to pursue with respect to Egypt, and the circumstances in which Egypt found herself, I think he will find we have not deviated by a hair's breadth from the line which we then laid down. I need not repeat what I have already expressed—namely, the obligation which we feel bound in honor to fulfill before we withdraw from the guardianship of Egypt. But when my noble friend asks us to go beyond that and to convert ourselves from guardians into proprietors, and to say that, in despite of all that we have said and that our predecessors have said, we will, under the circumstances and conditions as they are now, declare our stay in Egypt permanent and our relations to Egypt that of a conquering country to a conquered, I must say I think my noble friend pays an insufficient regard to the sanctity of the obligations which the Government has undertaken and by which they are bound to abide. In such a matter we have not to consider what is the most convenient or what is the most profitable course; we have to consider the course to which we are bound by our own obligations and by European law. We shall try to observe that rule faithfully. Undoubtedly we have no intention of abandoning our task until it is fulfilled; but we have no authority or right to give it the extension my noble friend desires.

Sir Edgar Vincent was led to suppose that the French Government regretted assuming an attitude that obstructed financial reform, and in July the Egyptian Government applied to it again, receiving in reply an assurance that the French ministry shared the view of Riaz Pasha, that the conversion is of vital importance to Egypt, but, as the political situation remained unchanged, France was compelled to withhold her consent.

Commerce.—The imports of merchandise in 1887 had a total value of 8,137,054 Egyptian

pounds, and the exports amounted to 10,876,417 pounds. The imports of specie were 3,066,740 pounds, and the exports 1,898,062 pounds. The principal imports were cotton goods, of the value of 1,547,571 pounds; other textile manufactures, 668,604 pounds; machinery, 504,075 pounds; coal, 407,342 pounds; hosiery and clothing, 362,805 pounds; wine, beer, and spirits, 323,630 pounds; oils, 309,057 pounds; timber, 289,597 pounds; tobacco, 268,003 pounds; coffee, 239,589 pounds; iron and steel manufactures, 227,145 pounds; indigo, 222,773 pounds. The value of the exports of raw cotton in 1887 was 7,524,567 pounds; cotton seed, 1,277,050 pounds; beans, 524,380 pounds; sugar, 489,893 pounds; wheat, 169,803 pounds; rice, 133,800 pounds. Of the total export and import trade in 1887, the share of Great Britain was 54.2 per cent.; of France, 9.5 per cent.; of Turkey, 9.5 per cent.; of Austria-Hungary, 7.3 per cent.; of Russia, 7 per cent.; of Italy, 5.6 per cent.; of India, 2.5 per cent.; of Greece, .66 per cent.; of America, .56 per cent.; of all other countries 3.28 per cent. The conclusion of commercial treaties in 1884 with Greece, Italy, England, the United States, Portugal, and other countries promoted commercial exchanges, especially by the impetus that it gave to tobacco imports. The Government receipts from tobacco rose from 124,410 pounds in 1884 to 387,000 in 1888.

Agriculture.—The grain crops are sown in November and harvested in May or June. In March the principal summer crops are sown, consisting of cotton, sugar, and rice, which are ripe in October or November. Rice, sorghum, and vegetables are planted in July, and are ready to gather in September or October. In 1887 there were 1,288,361 acres under wheat, 977,064 under clover, 898,485 under cotton, 784,651 under beans, 709,867 under maize, 540,166 under barley, 458,100 under Egyptian maize, 155,833 under lentils, 155,418 under rice, 135,650 under helbe or fenugreek, 82,080 under potatoes, 73,914 under sugar-cane, 32,737 under vetch, 21,555 under melons, 13,885 under lupins, 12,101 under tobacco, 11,368 under peas, 5,147 under sesame, and 57,515 under vines, orchards, and other crops, making a total of 6,367,960 acres, of which 1,217,565 acres bore double crops. In Lower Egypt, where the land is watered by means of canals, four crops are grown in three years. In Upper Egypt irrigation is effected by flooding the land at high Nile, and seven crops are obtained in every six years. The number of feddans cultivated in Lower Egypt in 1887 was 2,743,990: in Upper Egypt, 2,217,472. The cattle and farm animals, including horses and camels, was 1,668,860. There were 3,452,674 bearing date trees in 1887. The Nile rose in 1887 to the highest level recorded in 150 years. In 1888, on the contrary, there was, with the exception of 1877, the lowest Nile of the century. It was suspected that the Mahdists had deflected the course of the White Nile. The deficiency had a disastrous effect especially on the agriculture of Upper Egypt, where 300,000 acres were thrown out of cultivation. The resulting loss of revenue was estimated at £300,000. The number of men employed in forced labor by the Irrigation Department was 58,788. They cleared from the canals 8,893,300 cubic metres. The work

done by machinery and hired labor costs about 5 *d.* per cubic metre. The expenses of dredging the Ibrahimieh Canal have been reduced by more than half since 1885.

Railroads and Telegraphs.—The total length of railroad lines is 1,109 miles, of which 165 miles are double. The length of lines in actual operation in 1887 was 900 miles. The gross receipts were 1,296,568 Egyptian pounds, and the expenses 586,456 pounds.

The Government in the beginning of 1888 had 3,172 miles of telegraphs, with 5,423 miles of wires. Cairo and Alexandria are connected by telephone. The number of European commercial telegrams dispatched in 1887 was 429,729; of Arabic commercial telegrams, 380,175; of railroad telegrams, 817,077.

The Post-Office.—The number of domestic letters carried during 1887 was 8,174,000; of foreign letters, 4,742,000; of parcels, 130,676. The amount of specie transported was £11,486,095, as against £10,926,296 in 1886. Of the foreign correspondence 31 per cent. was with Great Britain.

The Suez Canal.—The length of the canal, which was opened for navigation on Nov. 17, 1869, is 87 miles, inclusive of 21 miles of lakes. The share capital of the company consists of 395,471 shares of 500 francs each, of which 176,602 formerly belonged to the Khedive Ismail, and were purchased from him by the British Government in 1875 for the sum of £3,976,582. Besides this capital of 197,735,500 francs, the company has raised at various times 85,502,330 francs by 5-per-cent. obligations, issued at 60 per cent. of the par value; 24,098,580 francs by 3-per-cent. obligations; 8,709,000 francs by bonds paying 6 $\frac{1}{10}$ per cent.; 3,864,000 francs by 5-per-cent. coupon bonds; and 53,062,810 francs in other ways. There are 100,000 founders' shares in addition to those placed on the market. The company's statutes provide that an interest of 5 per cent. on the paid-up capital must be first paid. All earnings in excess of that are divided in the proportion of 15 per cent. to the Egyptian Government, 10 per cent. to the founders' shares, 71 per cent. as dividend on the other shares, 2 per cent. to the employés, and 2 per cent. to the managing directors of the company. The surplus profits thus divided in 1887 amounted to 29,988,490 francs, and the dividend paid to shareholders, after providing for the sinking fund, was 15 $\frac{6}{10}$ per cent. The gross receipts for the year were 57,862,350 francs.

The number of vessels that passed through the canal during 1887 was 3,137, of 8,430,043 tons. Of these, 2,330, of 6,372,586 tons, were British; 185, of 567,064 tons, French; 159, of 364,214 tons, German; 138, of 379,061 tons, Italian; 123, of 300,943 tons, Dutch; 82, of 197,675 tons, Austrian; 28, of 48,489 tons, Norwegian; 26, of 92,613 tons, Spanish; 22, of 57,847 tons, Russian; 19, of 23,093 tons, Turkish; 7, of 10,370 tons, Chinese; 7, of 5,677 tons, Portuguese; 5, of 3,609 tons, Egyptian; 3, of 2,111 tons, American; 2, of 3,807 tons, Japanese; and 1, of 876 tons, Belgian.

In 1888 the number of vessels that used the canal was 3,440, of which 1,608 passed through at night. The number of passengers was 183,000. Since 1870 the total traffic has been 40,297 ships, the tonnage has been 65,000,000, and the

number of passengers more than 2,000,000. The night service has reduced the average time of passage to 30 $\frac{1}{2}$ hours. The gross receipts for 1888 were 67,000,000 francs, and the expenses 7,743,000 francs, or 11 $\frac{1}{2}$ per cent.

Events in the Soudan.—The conflicting rumors of the bazars, and tales brought from the Soudan by paid and voluntary messengers, soldiers of Hicks's army escaped from captivity, Greek traders in disguise, and other dubious elements, indicated in their main drift that the power of the Khalifa Abdulla was on the wane in the early part of 1889. The first of the Egyptian garrisons to desert to the Mahdists had been Dara, which was betrayed by Khalet, vakeel of the Mudireh. Indueing the acting mudir of Keb Kubieh to join him, Khalet besieged Fasher, and captured it by strategy in January, 1885, sending a large store of rifles, a mitrailleuse, and twenty-four guns to the Mahdi at Omdurman. The Mahdists thought that they had the sympathies of the tribes of Darfour, and, leaving emirs in charge, they departed to enter on other conquests. Yet Yussuf, a grandson of the late Sultan, immediately arose, proclaimed himself Sultan, and for nearly a year held the province against the Mahdi's forces. Even after he was slain, and the country had been reoccupied, the people continued the war, and in 1887, when the dervishes were resolved on conquering Dar Tama, Waday, and others of the western provinces, they sent strong re-enforcements into Darfour. The generals of the Sultan of Waday put to flight the Mahdists with great losses, and they have never been able to establish themselves in that province, except at Omshiang and Shiaka. In Kordofan Mahdism gained a strong foothold only in the principal centers, such as Obeid and Bara. The people of Darfour finally reconquered their independence with the aid of the Sheikh Senoussi, the powerful religious despot of the Sahara and Western Soudan, who gave the French much trouble in Tunis. When his general, Moheideen, appeared in the latter part of 1888, his force, augmented by accessions of the tribes around Bornu and Bogu, expelled the dervishes from Fasher, driving them back on Obeid. All the tribes of Darfour joined Senoussi, and the dervishes were driven out after many sanguinary battles, taking refuge in Kordofan. The Khalifa sent them re-enforcements; but notwithstanding these they were beaten again, and the city of Kordofan was occupied by Senoussi's people, who were joined by the Arabs of the district. All the tribes of the Upper Nile were said to be against Mahdism in the beginning of 1889, excepting the Baggaras and the Dongolese. The Shoukrieh on the Atbara river revolted, and killed the Khalifa's officials. A Mahdist army commanded by Mohammed el Khair was said to have been defeated by Abou Ghema Iya, one of Senoussi's generals, at a place seven days' journey west of Omdurman.

An English force was sent in the autumn of 1888 against Osman Digma, who was harassing the garrison at Suakin. The Mahdist general was beaten in a decisive engagement, and retired to Handoub. The English force was withdrawn from Suakin. Osman Digma also retired in February, 1889, to Tokar, where supplies were more abundant. Two months later he appeared

again before Suakin, intrenched himself in its environs, attacked the Egyptian garrison, and succeeded in capturing a redoubt. The black troops were, however, fully competent to deal with the dervishes. On May 5 Col. Holled Smith, the Governor of Suakin, captured the port of Halaib, driving out the dervishes by shells from his vessels, in order to protect the trade fostered by the British.

Successive armies were sent from Omdurman against Emin Pasha on the Bahr-el-Gazelle. In November, 1888, on the intelligence that the previous force had been annihilated, a fresh corps of 6,000 men was dispatched. The troops of the first expedition were reported to have been surprised in August, 1888, while cutting a passage for their steamer through the grass-dam that obstructed the White Nile, only a few of them escaping, leaving the steamers and barges with their stores and arms in the possession of Emin's men. In October there was a report of the surrender of one of Emin's garrisons south of Lado.

One of the Khalifa's generals, Abou Hanga, was engaged in 1888 in an unsuccessful campaign against King Johannes of Abyssinia. He raided Gondar, killing and taking captive large numbers of both sexes, but was beaten in a pitched battle, returning with only a few hundred of his men to Omdurman. When King Johannes threatened to advance as far as Khartoum, if necessary, in order to chastise the assassins, another army of 6,000 men was collected with difficulty in the neighborhood of Khartoum, which was victorious in the battle near Galabat, where the Negus lost his life.

Advance of the Dervishes.—The Khalifa and his emirs began in 1888 to collect a force for a descent on Upper Egypt. Adventurous bands from Dongola and Berber have harassed the garrison at Wady Halfa every year. The Khalifa decided to make this time a more determined attack than usual, in order to restore his diminishing prestige and rekindle the belief in his religious mission, since the Kabbabish and many other tribes began to place their faith rather in his rival, Senoussi, who was advancing in the western Soudan. The Soudan is an overpopulated country, becoming more so since the stoppage of the slave trade, and has been impoverished by intestine wars and the cessation of external commerce. Therefore it is not difficult to raise a force for any adventure that promises conquest or plunder, especially if the fanatical motive is added of wresting territory from the dominion of Christians. The retirement of the British troops from Suakin, regarded as a retreat by the Soudanese, encouraged them to engage in the enterprise. Wad el N'juma, the most trusted of the Khalifa's generals, collected a force of about 8,000 men at Dongola, and in April the vanguard moved forward from Sarras in the desert, encountering on April 30 the Egyptian picket at the village of Serra, where Major Judge held his ground with 50 men, and, when re-enforced by Major Cunningham with 100 more, attacked and drove back the enemy, said to have been 450 strong. The dervishes lost 40 killed and captured. The Egyptian cavalry scoured the desert, expecting to cut off the dervishes' retreat to Sarras, but they had made a camp far out in the desert. In June the main body of the

dervishes was ready to advance from Sarras. On receipt of the intelligence that a force of 2,000 men were on the march and intending to turn Wady Halfa and secure a position to the north of it, Gen. Grenfell, the sirdar or commander-in-chief of the Egyptian army, ordered Col. Shakespear with his battalion to re-enforce the garrison at Assouan. As these events coincided in time with the French demand on the English Government to indicate a time for leaving Egypt, the English garrison was sent forward a few weeks later to take up a position of observation in the rear of the Egyptian troops, and at the same time British troops were ordered from Malta and Cyprus to take the place of the troops withdrawn from Alexandria and Cairo, in order to avert the dangers of an insurrection of the Egyptian people in sympathy with the Mahdist invasion. The Khalifa sent envoys to Egypt bearing letters for the Queen of England and the Khedive, exhorting them to embrace Mahdism, and threatening them with invasion and extermination in case of refusal. In proof of his power he inclosed the Queen's original letter that had been taken from the Negus Johannes of Abyssinia, whose defeat and death had been the consequence of his refusal to adopt the new religion. A body of 340 mounted dervishes made a raid on Gustol, 40 miles north of Wady Halfa, but were driven back into the desert by the fire from a gunboat. Near the end of June Wad el N'juma had established his camp at Matuka, 12 miles south of Wady Halfa. Accessions to the horde made the total number 12,000 or 14,000, with 800 camels, before the onward movement began, but of these not more than 5,000 were fighting men, the rest being villagers pressed into the service, camp followers, slaves, women, and children. The Soudanese had great difficulty in feeding so great a number of non-combatants, and found it impossible to supply them with water, as the Egyptians patrolled the river in gunboats, while their cavalry guarded the bank, to prevent the enemy from taking water from the Nile. Wad el N'juma made one determined effort to get a foothold on the river bank at Arguin, on July 2. His whole force, with his six guns, advanced in close order against the fire of the gunboats, three battalions of Egyptian infantry, the camel corps, and a field battery. They charged with desperation, but were easily repulsed by the artillery fire, and, leaving 500 dead on the field, they retreated to the hills, pursued by the cavalry and harassed by the camel corps on their flank. There were 500 prisoners taken, and two of the enemy's guns. On the Egyptian side 70 men were killed or wounded, among the latter being two of the British officers. From that time daily numbers of the famished and emaciated camp followers deserted to the Egyptians. Parties of the enemy stole down to the river for water, and in nearly every instance were cut off, and killed or made prisoners. Those who returned to Serra and beyond found the river bank guarded everywhere. In the desert there were few wells, and these were seldom used by the invaders, who wished to retain the friendship of the Hadendowa nomads. Wad el N'juma, after his repulse at Arguin, deserted the camp at Matuka, and passed to the north of Wady Halfa. As they marched north-

ward the Egyptian troops kept a parallel course in their steamers. Cavalry visiting their deserted camps found women and children dying from exhaustion. The sheiks of the Bimban district and the merchants of Assouan were in sympathy with the invaders, but were unable to aid them, as Gen. Grenfell had the entire west bank of the Nile, as far as Toski, cleared of crops and date trees, and the inhabitants all transported to the other shore of the river. On July 10 he issued a proclamation threatening with death any person who held communication with the enemy. At that date Wad el N'juma's army was camped three miles south of Abu Simbel, where it was bombarded by the gunboats on the 9th with destructive effect. The dervishes in smaller numbers attempted to advance on the east side of the river, but they encountered the enmity of the Bishareen Arabs, who held 400 of them besieged in their camp near Meissah. In some of the skirmishes with water parties the Egyptians killed as many as 60 and 90 dervishes at a time. Before the middle of July their losses in killed and wounded were estimated at 2,500, or half their fighting force. At that time the Emir of Dongola, who had supplied the Mahdist commander with his troops, sent 1,500 re-enforcements. The Egyptian forces, who were both before and behind the Mahdists, could easily have crushed them at any moment, but for political reasons it was given out that the Egyptians were not strong enough, and the British garrison in Egypt was re-enforced by two regiments. Wad el N'juma was one of the most fanatical of the lieutenants of the late Mahdi. He had taken an important part in the rout of Hicks Pasha, had served with the Mahdi against Gordon, and commanded the Soudanese forces that confronted Gen. Wolseley at Metemneh. On July 16 Sir Francis Grenfell sent a proclamation to the Mahdist camp, calling on Wad el N'juma and the three principal emirs to surrender, and promising that the lives of all should be spared. Wad el N'juma had the messenger beaten, and then read the proclamation to the people. In his answer, he said:

Your force is nothing to me, and my goal is not Bimban, as you think, but the world, which I am to convert. All who surrender to me I can protect. Your letters have been sent to the Khalifa to answer. I can not stop now. Take my advice and surrender. Remember Hicks and Gordon, and what little good their armies availed them.

The dervishes remained many days at Khor, where they could obtain water from the wells of Abu Simbel, before undertaking the march of four days through the desert to Toski. Their camp was shelled by the Egyptian artillery several times. Maku el Nur, in command of the re-enforcements from Dongola, who were diminished by battle and desertions to about seven hundred men, joined Wad el N'juma about July 25, and on July 28 the Mahdists struck their camp and resumed their march northward. On Aug. 1 they took a position near Toski. There Gen. Grenfell with the black Egyptian infantry, assisted by a detachment of British mounted troops under Col. Kitchener, attacked them on Aug. 3. In the early morning a reconnoitering force of Egyptian cavalry and camels drew out Wad el N'juma's entire force by a feint of re-

treating to within four miles of Toski, where the infantry under Col. Wodehouse and the artillery under Maj. Rundle opened the attack, and a general action took place. After seven hours of severe fighting, the dervishes being driven from two positions in the hills at the point of the bayonet, the Egyptians won a complete victory, driving the enemy into the desert, after having killed Wad el N'juma, 12 of his principal emirs, and 1,500 of the fighting men, about half of the entire force. The Egyptian losses were very light. The Egyptian infantry fought with steadiness and courage, withstanding a succession of fierce onsets of the dervishes. The Egyptians pursued in gunboats the retreating remnant of the invading force, and occupied Sarras, but afterward evacuated it, and drew back to their old line at Wady Halfa.

ELIXIR OF LIFE. The desire to arrest the natural decay of age, to prolong life, if not indefinitely yet for a space beyond the ordinary term of human existence, has prevailed in all times and among all peoples. When all men desired immortality, the world was loath to believe that its great heroes shared the common fate of humanity. King Arthur sleeps at Avalon, and Holger Danske dreams until the appointed hour for awakening. Barbarossa sits spell-bound in Thuringia until his red beard shall have wound itself thrice around the great stone table before him. Charlemagne slumbers less quietly in the Odenberg, for he emerges once a year to bless the harvests. Brian Borohme in Ireland, Boabdil the Unlucky and the great Cid in Spain, Kuezi Lavai in Servia, and other celebrities, elsewhere, wait, crowned and armed, somewhere in the bosom of Mother Earth, until the time shall be ripe for their return. Merlin sleeps in an old tree spell-bound by Vivian. John the Divine lies at Ephesus, untouched by corruption, the ground heaving above him with every breath, waiting the summons to come forth and bear witness against Antichrist. Joseph of Arimathea sleeps a sleep that is not that of death in the holy city of Arras. The resting-places of all these heroes and saints have been discovered at sundry times by persons who have lost their way; and in most cases the intrusion has startled the slumberers so that they have opened their eyes only to find that the appointed time has not arrived. On the other hand, the curse of a deathless life has been passed on more than one unfortunate—on the dancers of Kolbeek, because they sighed for an eternity of their mad revels; on the Wild Huntsman, because he wished to chase the wild deer forever; on Vanderdecken, captain of the "Flying Dutchman," because he vowed he would double Cape Horn whether God willed it or not; on the Man in the Moon, because he gathered fagots on Sunday: on the Wandering Jew, because he refused to let the cross-laden Saviour rest for a moment on his threshold. But the horrors of an enforced immortality were never more vividly painted than by Swift in the *Struldbrugs* of Luggnagg, who were doomed to an eternity of dotage, a burden to themselves, despised by the beings born to the happier heritage of death. Tennyson, in his monologue of "Tithonus," has set forth the poetical and philosophical aspect of immortal life without immortal youth.

But while these and many other fables rose from the natural yearning after the prolongation of human life beyond its natural span, it was not until the rise of alchemy, in the middle ages, that the search for an elixir of life, as a scientific possibility, engaged the attention of thinking men. It is difficult to state in plain English the fundamental principles of the alchemists; first, because their utterances had a mystic or esoteric signification that outran the plain ordinary meaning of words; and, second, because the authorities differed largely among themselves and each spoke a jargon of his own. But the alchemic philosophy was nearly if not exactly as follows: All matter is simply the varied and shifting manifestation of four elementary substances. These four elements, according to Paracelsus, are salt, sulphur, and mercury, and (rather unphilosophically) a compound of the three, which produced metals. There was a fifth element, a quintessence (hence our modern word) an unknown and only true element, of which the four (or three) generic principles themselves were derivative forms, and into which it was the hope of the alchemist to resolve them. This quintessence was, in fact, the philosopher's stone, the elixir of life, and the *alkahest* or universal solvent, which were the triune object of the alchemist's search—another application of that doctrine of trinity which had so strange a fascination for mediæval minds. Gold was the perfect form of metallic elements, said the alchemists. Nature always began with the intention of producing gold, but at this or that stage of development the hand of Nature was stayed by some accident, and the results of such arrests of development were the baser metals. The same substance that would rid metals of their impurities would naturally heal the impurities of living organisms. Hence, in the earliest times it was supposed that the elixir was potable gold, i. e., a solution of gold in aqua regia. To this Roger Bacon attributed his seventy years of life, and he recommended the liquid to Pope Nicholas IV, telling him how an old man, plowing one day in Sicily, found some yellow liquid in a vial and drank it off, supposing it to be dew, and instantly was transformed into a hale and hearty youth. By others the elixir was variously described as an invigorating paste, a red powder, or a liquid containing some of the properties of sea-water. Saltpeter was long looked upon as a possible elixir, because it was found in the animal, mineral, and vegetable kingdoms. Basil Valentine recommended antimony. Glauber, who discovered Glauber's salts, speaks of salt as the beginning and end of all things. Arterphius, in the twelfth century, wrote a treatise on the art of prolonging human life, and claimed to have lived one thousand and twenty-five years. Frederick Gualdo, the Rosicrucian, lived the more modest term of four centuries. Arnold de Villeneuve had a recipe for the prolongation of human life for a hundred years. Louis XIII made Chataigne, a Franciscan monk, his grand almoner, because he held before him the promise of a reign of a hundred years by means of a grand elixir. As late as the middle of the last century, Joseph Balsamo, more generally known as Cagliostro, found ready customers for an elixir through whose agency he pre-

tended to have lived in perennial youth for one hundred and fifty years.

The idea that the generative organs of animals contain the vital principle of life, is of great antiquity. The American Indians and remotely separated tribes of savages still devour raw the generative organs of newly killed animals, under the belief that by so doing they renew life; but it remained for Dr. Brown-Sequard to recommend semen as a nutritive elixir. On June 1, 1889, he made to the Société de Biologie of Paris, a communication concerning the effects produced on a man by subcutaneous injections of a liquid obtained from the testicles of animals; and subsequently he communicated the substance of that article to the "Lancet." These communications excited much attention and comment in Europe and America. Briefly, he said in them: "For a great many years I have believed that the weakness of old men depended on two causes—a natural series of organic changes and the gradually diminishing action of the spermatogenic glands. In 1869, in a course of lectures at the Paris Faculty of Medicine, discussing the influence possessed by several glands upon the nervous centers, I put forward the idea that if it were possible, without danger, to inject semen into the blood of old men, we should probably obtain manifestations of increased activity as regards the mental and various physical powers. Led by this view, I made various experiments on animals at Nahant, near Boston, in 1875. In some of those experiments, made on a dozen male dogs, I tried vainly, except in one case, to ingraft certain parts or the whole body of young guinea-pigs. The success obtained in the exceptional case served to give me great hopes that by a less difficult process I should some day reach my aim. This I have now done. At the end of last year I made on two old male rabbits experiments, which have been repeated on several others, with results leaving no doubt as regards both the innocuity of the process used and the good effects produced in all these animals. This having been ascertained, I resolved to make experiments on myself, which I thought would be far more decisive on man than on animals. I made use, in subcutaneous injections, of a liquid containing a small quantity of water mixed with the three following parts: First, blood of the testicular veins; second, semen; and third, juice extracted from a testicle, crushed immediately after it had been taken from a dog or a guinea-pig. Wishing in all the injections made on myself to obtain the maximum of effects, I employed as little water as I could. To the three kinds of substances I have just named, I added distilled water in a quantity that never exceeded three or four times their volume. The crushing was always done after the addition of water. When filtered through a paper filter, the liquid was of a reddish hue and rather opaque, while it was almost perfectly clear and transparent when Pasteur's filter was employed. For each injection I have used nearly one cubic centimetre of the filtered liquid. The animals employed were a strong and, according to all appearances, perfectly healthy dog (from two to three years old) and a number of very young or adult guinea-pigs. The experiments so far do not allow of a positive conclusion as re-

gards the relative power of the liquid obtained from a dog and that drawn from guinea-pigs. All that I can assert is, that the two animals have given a liquid endowed with very great power. I have hitherto made ten subcutaneous injections of such a liquid—two in my left arm, all the others in my lower limbs—from May 15 to June 4, last. The first five injections were made on three succeeding days with a liquid obtained from a dog. In all the subsequent injections, made on May 24, 29, and 30, and June 4, the liquid used came from guinea-pigs. When I employed liquids that had passed through Pasteur's filter, the pains and other bad effects were somewhat less than when a paper filter was used."

Dr. Variot, an eminent French physician, made a trial of the elixir recommended by Dr. Brown-Sequard upon three old men, using the testicles of rabbits and guinea-pigs, with successful results. In the United States numerous experiments were made. At Connersville, Ind., on Aug. 9, the elixir was made from the most vital organs of sheep and thoroughly triturated, and the fluid tightly corked in bottles. The fluid was pinkish, of the consistency of sperm oil, and odorless. It was an hour and thirty minutes after the animal had been killed before the fluid was injected into the arm of the patient, who was William Greer, an old and well-known citizen, who suffered from chronic rheumatism contracted during the war, and who during the past four months had been unable to take off his coat or grasp anything in his hands. By means of a hypodermic syringe, a drachm of the elixir was injected into each arm just above the elbow, and a drachm in the muscles of the left leg. No sensation was at first felt by the patient, except the pricking of the needle of the syringe. After remaining quiet about twenty minutes, he said he felt a peculiar sensation in his fingers; and his face flushed. In a few more minutes he could close his hand, a thing he had not been able to do for months. About forty-five minutes after the injection, he rose and walked with comparative ease, putting on his hat and coat without trouble.

In Springfield, Ohio, the elixir was given to many persons. Nine people, most of them aged men, stiffened by the various diseases that afflict the old, after receiving hypodermic injections of a pinkish fluid extracted from progenerative organs of three buck lambs, declared themselves filled with new life. One thing mentioned as notable in all the cases was the rapid acceleration of the beatings of the pulse. The dose seems to have been a single drachm.

In Louisville, Ky., the patient selected was an old man who was troubled with nocturnal diabetes and asthma of such an aggravated form that he had been unable to lie down to sleep for six weeks. A sedative was given him one evening, and the next morning an injection was made with carefully prepared elixir, though he was not informed of its nature. He slept well the next night, and appeared to be greatly improved.

A case was recorded in the newspapers, but seems to lack confirmation, where a preparation from fowls and lambs, with distilled water, was said to have been given to an old colored man who had been paralyzed. The result was said to

be most satisfactory, as the patient was soon walking about freely, sleeping well, and eating heartily.

At Fort Wayne, Ind., the patient had been so seriously affected with rheumatism that he had been unable to walk without the aid of crutches. In less than an hour after the injection, the patient, not knowing anything concerning the nature of the operation, or what was claimed for it by its discoverer, threw away his crutches and walked about the room with ease. His pulse rose to 138.

From Lima, Ohio, came the account of an experiment upon an old lady who had been a confirmed morphine-eater for twenty years. She was about sixty years old, and had acquired the habit when about forty, which grew to such an extent that she had eaten from twenty to twenty-five grains daily for the past twelve months, and for the past six months had been unable to attend to any work, no matter how light. Two drachms of the elixir were injected into her arm, and there was at first no perceptible change in her appearance, but when bedtime came she retired without taking her customary dose of morphine, and for the first time in years she slept soundly, and awoke in the morning greatly refreshed. The family were astonished at the results, and the old lady said she felt twenty-five years younger. She rose and dressed herself without assistance, walked to the breakfast-table, and ate a hearty meal. The elixir brought the color back to her cheeks, the sparkle to her eyes, and new blood in her veins. She has not taken a particle of morphine since, and says she has no desire for it.

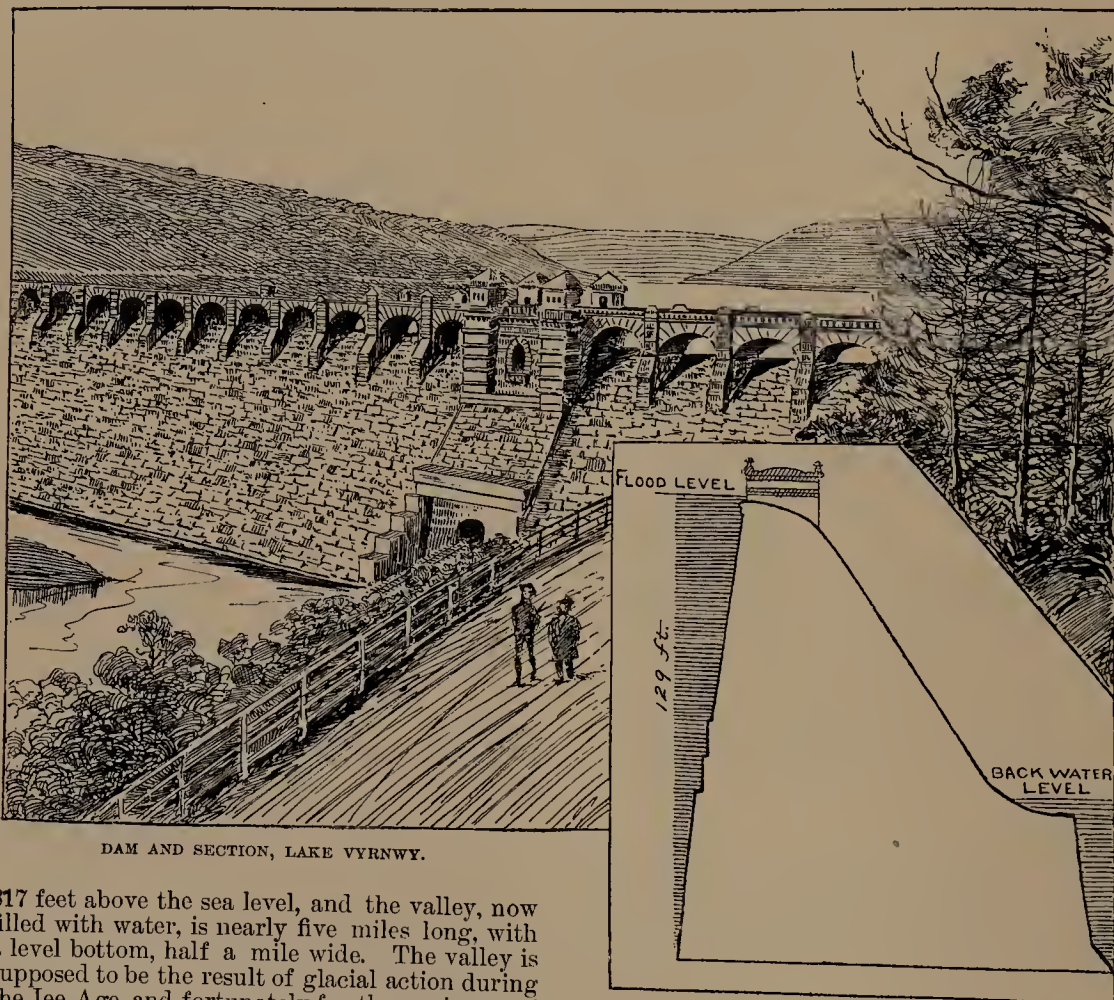
At Detroit, Mich., the elixir was administered to two patients—sixty and seventy years old, respectively. The elder man was decrepit, and had been in failing health for some years. The first injection seemed to put new life into him, and the effect of the second administration was remarkable. He walked erect, had the appearance of strength, and said he felt remarkably well. The younger man did not show such pronounced results immediately after the first trial, but with the second he appeared greatly rejuvenated.

In New York the experiment was tried upon several persons. One of the old men who had been injected with the elixir was a shoemaker, fifty-six years of age. He had been under treatment in Bellevue Hospital for emphysema, chronic bronchitis, and asthma. He was given four injections of thirty minims each of the fluid, at intervals of two days. A short time after the first injection he said he felt as if he had taken a big dose of morphine. That night he was not troubled with the asthma for the first time in more than a month. During the following day he felt much better and stronger. The improvement continued and increased up to the time of the fourth injection. After that, although he complained of no pain at the seat of puncture, his general condition seemed to be much worse. His hands trembled, he complained of a burning sensation, and appeared as one who had suffered a severe nervous shock. At the end of twenty-four hours his condition became substantially what it had been previous to the last operation. After this, the seemingly beneficial effects wore gradually off, the asthma returned, and the patient grew weak.

ENGINEERING. Water Works.—The completion of the great dam across the Vyrnwy valley, among the mountains of North Wales, with its connecting aqueduct, finishes one of the greatest engineering works of the century. The illustration shows the end of the dam with a portion of the lake and a section of the masonry work. The aqueduct is 68 miles long, from the dam to the distributing reservoirs at Prescott, and it is nine miles more to the Town Hall in Liverpool. This is 32 miles longer than the great Claudian aqueduct. The surface of the lake is

strength of the opposition, and a final review of the whole structure was published in the engineering journals.

The constructing engineer was Mr. G. F. Deacon, C. E. The rock bar crossing the valley was laid bare for a space 120 feet wide by 1,100 feet long. All loose material was removed and the sloping rock surface was benched or stepped to receive the foundation. The river was diverted while the building was in progress. Stone was quarried near by, similar in character to that in the bed-rock of the dam. No stones were al-



DAM AND SECTION, LAKE VYRNWY.

817 feet above the sea level, and the valley, now filled with water, is nearly five miles long, with a level bottom, half a mile wide. The valley is supposed to be the result of glacial action during the Ice Age, and fortunately for the engineers of to-day a natural bar of harder rock remained for a foundation at the lower end of the valley. The Vyrnwy river has six tributaries above the dam, draining an aggregate area of 23,000 acres, and finding their source in mountain moorlands 1,300 to 2,200 feet above the sea level. Probably this system of water works has no superior in excellence of construction. Residents in the valley below were naturally anxious about the security of the work, and more than once during its progress attempts were made to bring the whole undertaking into discredit. Rigorous investigations were ordered, and the work, from beginning to end, has the approval of the best engineering talent in the United Kingdom. The Johnstown disaster, coming as it did, just as the Vyrnwy dam was nearing completion, renewed the

lowed of more than ten tons weight, and nearly 50 per cent. of the material was in blocks of less than two tons. No grouting of any kind was allowed, the intimate mixture and density of the filling material being attained by ramming.

A tower, not shown in the illustration, stands in 50 feet of water, 140 feet from the shore. Its total height is 160 feet, with a diameter of 47 feet at the base. Within are screens of fine copper-wire gauze, through which all the water passes before delivery into the tunnel.

The population of Liverpool is now rapidly nearing a million souls, and, as the Vyrnwy works, when completed to their full capacity, are expected to deliver 40,000,000 gallons daily, the water-supply is probably secure for many years to come.

Inland Navigation.—The possibility of causing rivers to keep their own channels clear by means of training-works, jetties, dredging, and the like, has attracted much attention of late years, and is no doubt destined to bear an important part in the inland commerce of the future. The amount of solid matter carried in suspension by all streams during floods and by some streams at all times is enormous. The Danube, for instance, deposits nearly 68,000,000 tons yearly in the Black Sea. The quantity of solid matter in a cubic foot of water varies from 6 grains to nearly 1,000 grains, according to the season. The Hooghly, it is estimated, deposits 39,000,000 cubic yards of mud, the Plate 82,000,000 tons, and the Mississippi, according to careful estimates, displaces every year a body of water in the Gulf of Mexico 1 mile square and 241 feet deep. This is continent-making at a rapid rate, but not all the matter in suspension reaches the river mouth. Much of it is deposited in the eddies and quiet reaches of the stream, and thus navigation is often impeded. The water of the Mississippi is never clear, hence its enormous energy in the transportation of material, but it is well known that successful engineering devices have been employed in making the great river scour its own channel. The quantity of solids varies largely. In the river Tees (England), while certain training-works were in progress, the weight of solid matter was equal to $\frac{1}{32}$ of the weight of the water (2 pounds in a cubic foot). In the Durance and the Vistula in flood time the proportion is $\frac{1}{48}$; in the Garonne and the Rhine $\frac{1}{100}$. The maximum observed in the Rhone is $\frac{1}{48}$. In the Nile the quantity carried in suspension is small, about $\frac{1}{64}$ of the weight of the water. The efficient transportation of solid matter depends on the velocity of the current, which is never constant, but where the current is comparatively steady the tendency of the matter in suspension is toward the bottom of the stream. Numerous experiments have been made with a view to ascertaining the quantity of material that water will carry at different velocities without overloading. The data usually quoted are those of M. le Comte Du Buat, who found that a velocity of 3 inches in a second would move semi-fluid river mud, 6 inches a second moved soft clay, 9 to 12 inches a second moved coarse sand, and 2.16 feet a second moved sea-shingle 1 inch in diameter. Controversies have arisen from measuring the amount of matter in a cubic foot of water, instead of that moved in a given time.

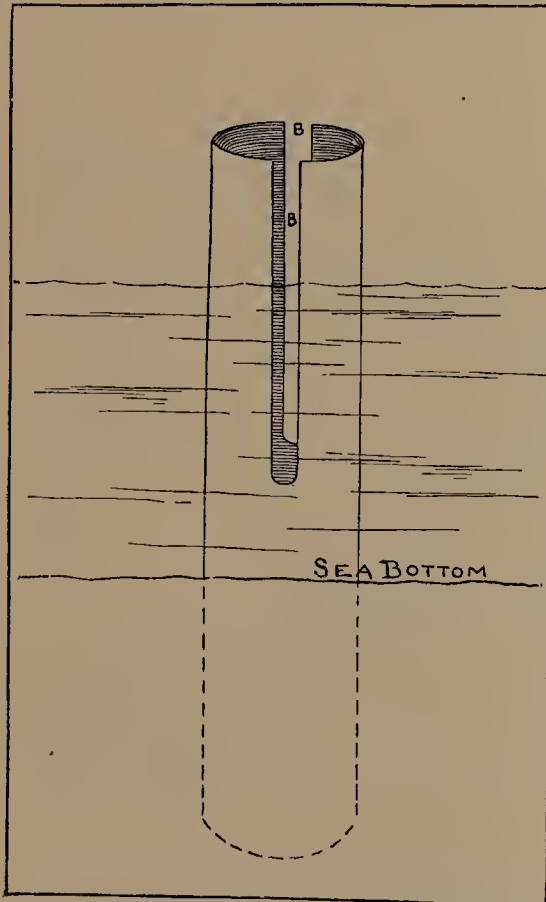
Mr. W. Airy has calculated that the carrying capacity of a stream varies as the sixth power of its velocity. Take, for instance, a current moving 8 feet in a second: If its velocity be increased to 9 feet a second it will move twice as much silt as at the lower rate, or if to 16 feet a second it will move 64 times the weight that it did before. Again, the scouring power of a very shallow rapid stream is less than that of a deeper and slower one. Until within a few years the usual process of deepening rivers has been by dredging; some of the modern devices have been described in earlier volumes of the "Annual Cyclopædia." This process requires the raising of the material from the bed of the stream, and its transportation to a distance. Of course, if the mate-

rial can be broken up by mechanical means the river will carry it away so long as the water is not overloaded. Among the devices resorted to are harrows and the like for stirring up the river-bed. Barges with wing-dams attached to them have been used to deepen narrow channels, the barge being anchored and the dams lowered so that the increased current carried away the silt deposit. Barges fitted in like manner with wing-dams sometimes have rakes or harrows attached to the bows, and are allowed to drift with the current, the increased pressure forcing them down stream and tearing up the bottom as they move. By this method 60 cubic yards of clay and sand were removed from the bed of the Garonne river at a cost of about 5 cents a yard. In the Mississippi two harrows, specially constructed for the purpose, were used. Each of them was capable of moving about 10,000 cubic yards a day. These machines were efficient in deepening the channels at the mouth of the river. The river Maas, below Rotterdam, has been deepened by means of a steamer having shafts with screw propellers at the ends, which could be lowered to the bottom and caused to revolve at a high speed. These removed sand at the rate of 130 cubic yards an hour, but eventually suction-pipes were substituted, which raised the sand from the bottom and discharged it during ebb tide. These methods were found to be far more efficient than direct dredging. In New York harbor, and elsewhere in this country, the plan of agitating the bottom by means of forced currents of water or air, has been successfully tried, and similar devices have been employed at Tilbury Docks in the Thames, and by the French in Algeria.

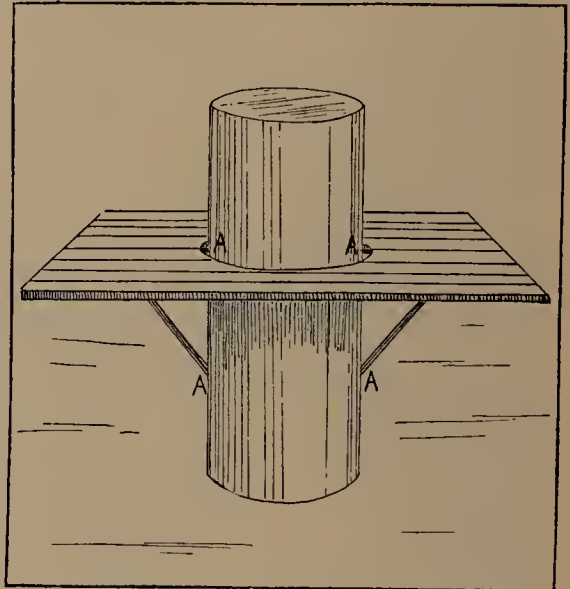
In the Fens on the east coast of England a somewhat primitive but effectual method is still in vogue. Cylinders covered with spikes (technically called hedgehogs) are dragged back and forth over the bottom, revolving as they go. The current does not exceed three feet a second, yet the quantity of material removed is about 700 tons in a working day. This is carried with but slight loss a distance of fifteen miles and deposited in a deep estuary where it can do no harm. The cost is less than two cents a cubic yard. The machines described are really efficient only when the bottom consists of fine, soft material. Mr. W. H. Wheeler, of the British Institute of Civil Engineers, has devised an apparatus designed to remove clay and other hard, compact material. A vertical shaft is fitted with a conical cutter at the lower end, and immediately above it a screw propeller. The shaft is fixed at the stern of a barge, or passes through a well amidships. It can be readily moved up or down, and revolved at a high rate of speed. The conical cutter tears up the clay, and the revolving blades above churn it into diluted mud, in which condition it will remain in suspension for a long time. One of these machines is in successful operation in an English tidal river, but reports of its performance have not been published. The problem of deepening navigable channels is of great importance, since the tendency of all cities is to encroach by slow degrees upon the tidal prism as fixed by nature. If tides and currents can be successfully harnessed to do the work of dredging, slowly, perhaps, but effectually, the gain will be correspondingly great.

A Novel Landing-Stage.—In tidal waters of moderate rise and fall, or in rivers that are subject to periodical freshets, the floating stage or wharf boat ordinarily meets all the required conditions, but where the rise and fall of the tide is considerable, as along the Atlantic coast north of Cape Cod, and in the waters surrounding Great Britain where there is often something of a sea at pier-heads and in other exposed situations, it often becomes a problem how to provide a convenient and safe landing for passengers. M. Noel Ridley, of Westminster, England, has devised an ingenious stage that has for several

enough to serve as a loose jacket for the first cylinder is sunk about 18 feet below the sea bottom (see Fig 1), leaving 42 feet exposed to the action of the sea. This upper section is vertically bisected by two slots, B B, diametrically opposite, as in the case of the fixtures of the platform cylinder. It is evident that if cylinder No. 1 be placed inside cylinder No. 2 it can slide freely up and down within the latter, the rigid brace A A running in the slots B B and the platform rising and falling outside the larger cylinder. The two slots admit water to the inside of the larger cylinder, but so slowly that the general in-



FLOATING LANDING-STAGE, OUTER CYLINDER.



FLOATING LANDING-STAGE, INNER CYLINDER.

months stood the test of actual use in connection with the Victoria promenade pier at Folkestone. The landing is exposed to the sea, and an ordinary float was out of the question.

The stage is a timber platform or deck resting on a framework of iron girders and rigidly attached to a vertical cylindrical float six feet in diameter and nineteen feet long, having sufficient displacement to support a full load of passengers at a height above the sea level corresponding with the gangways of the steamers using the pier. The points of rigid attachment (A A, Fig. 2) of the platform to the cylinder are two, diametrically opposite to one another, and the platform surrounds the rest of the cylinder at a distance of a few inches, suitably braced for strength. At the place where this cylindrical float is to remain another iron cylinder 60 feet long and large

side level is not perceptibly affected by the passage of waves. The comparatively slow movement of the tide, however, changes the level constantly, and with it of course the platform rises and falls. Access to the pier level is afforded by fixed iron steps beside the platform. In the illustration details of steps, railings, etc., are omitted to avoid confusion. So perfectly steady is this float and its attachments that a visitor who had been in the habit of fishing from the platform could hardly be brought to believe that it was afloat. It is said that the inventor is about to apply the same principle to a large swimming-bath at a considerable distance from shore.

The Loa Viaduct.—The completion of what is believed to be the highest railway viaduct in the world—highest certainly in that it is placed at an altitude of 10,000 feet above the sea level—is one of the more noteworthy engineering feats of the year. The Autogasta Railway in Bolivia crosses the higher Andes in its necessarily circuitous route from the coast to the interior. The cañon spanned by this structure is the bed of the river Loa, and was probably formed by the joint action of volcanic forces and ice. The sides are precipitous, and all the iron work had to be delivered at the crest of the western abutment and lowered into the cañon.

The iron work was all prepared in England, and so carefully were the calculations made that no readjustment was necessary when the col-

umns were erected. The structure rests on seven piers, each consisting of four hollow iron columns, cross-braced in sections of uniform height, and spreading at the base like the letter A. The track rests on lattice girders, which in turn rest upon the apex of the A. There is, therefore, nothing intrinsically remarkable about the plan of construction. In the absence of trustworthy data it was necessary to take extraordinary precautions against wind force. The calculations were therefore made to resist pressure that would blow a train of *empty trucks* from the track, the estimated condition of least stability being when a bridge is loaded with an empty train. The calculations, it should be noted, took into account the weight of the atmosphere, which is only about two thirds that at the sea level.

No temporary staging was used. A wire-rope tramway stretched from side to side of the canon was used to transport and place the different parts where they were needed—a device successfully employed in many works now in progress in this country.

This tramway was also used to carry a locomotive piecemeal across the canon—a service which was successfully performed, but which, when the boiler was sent across, strained the ropes to an alarming degree. The girders were put together on the abutment and transported to their places complete with the aid of the tramway and a crane. The iron columns were tested before shipment from England, and endured a longitudinal pressure of 600 tons without measurable deflection. The labor was all done by men, mostly sailors, unskilled in this kind of work, superintended, of course, by trained engineers. The principal dimensions of the viaduct are:

Length between abutments.....	800 ft.
Height from water to rails.....	386½ ft.
Length of longest column	314 ft.
Length of principal spans.....	80 ft.
Weight of iron work	1,115 tons.
Rolling load per foot	1½ tons.
Gauge of railway.....	2½ ft.

The structure was designed by Edward Woods, C. E., and Joseph Harding, C. E., and the construction was superintended by Peter Fisher and Joseph Fisher, who came out from England for the purpose. The viaduct, exclusive of the masonry foundations, was put together in a few days more than nine months, and without loss of life or serious accident.

Canalization of Rivers.—Outside of professional circles it is not generally known that a great deal of attention is now given in Europe to the improvement of internal navigation. In the "Annual Cyclopædia" for 1888, the hydraulic canal-lift at Les Fontinettes, France, was described and illustrated. Since then other similar structures have been completed or begun at several important points in Great Britain and on the Continent. Not only is interest largely centered on artificial water-ways, but the conversion of shallow rivers into navigable streams is attracting attention. In 1884 a meeting of Belgian, Dutch, and German engineers convened at Bremen, to consider possible improvements within their respective boundaries. From this resulted the first international congress at Brussels, in May, 1885. A second congress met at Vienna, in June, 1886, and the third took place in August, 1888, at Frankfort-on-the-Main. It

is authoritatively said that there is quite a general revival of canal construction in connection with the canalization of rivers. Early in the present century enterprises of this character were pushed forward with much energy, but the construction of railroads temporarily checked work, and the nations are now learning the lesson that after all speed is not everything in questions of transportation. In America, while the conditions are somewhat different, we are undoubtedly nearing a period when internal water transportation will resume at least a share of its former importance. In the international congress at Vienna it was decided that under some circumstances navigable ways could be profitably operated in competition with railways. The boats carry raw material at rates that are not remunerative to railroads, and thus deliver material at the manufacturing centers which otherwise would not reach them at all. This largely increases the manufactured product, which in turn reacts favorably to the railroads by increasing their paying traffic. According to M. Boulé, probably the highest European authority on the subject, the Rhine, the Elbe, the Seine, and the network of canals extending from Belgium to Paris in the north of France are to-day successful competitors with parallel and prosperous lines of railroad. "Experience," he says, "has shown that the most prosperous railways are those that run by the side of the most frequented water-ways. Wherever the latter have been improved not only has a boat-service subsisted, but its traffic has increased without hindering the development of the railway."

In the United States the question of the improvement of water-ways has been discredited by the abuses connected with appropriations under successive river and harbor bills, but nevertheless much has been accomplished. Adjustable dams have been constructed on many Western rivers through combined private and public enterprise, but our engineers may gain many suggestions from the experience of their European brethren. Very many devices have been successfully employed to deepen channels temporarily by means of adjustable dams, rolling shutters, and the like. Some of the latest inventions in this direction are embraced in the large works on the Seine, below Paris, and some of them are illustrated in the article on "Irrigation."

Country Roads.—In a comparatively newly settled country the making of good roads is necessarily slow, but there are encouraging indications that people are at last waking up to the enormous waste of material due to the careless methods heretofore followed by local road commissioners. In several States the authorities are taking steps to have repairs and construction carried out under competent supervision instead of leaving them wholly to unskilled labor. This movement is largely due to the action of the various bicycle clubs throughout the country. Actuated, at first, no doubt mainly by selfish motives, these associations, being composed largely of young men of means and good social standing, have been able, in a perfectly legitimate way, to bring political pressure to bear upon the authorities with highly commendable success.

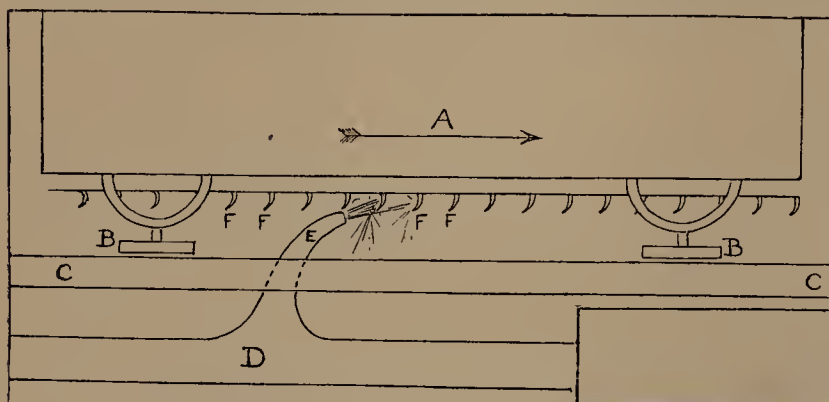
Probably the most extensive system of excellent roads in this country is in the vicinity of

Boston, where, in a radius of twenty miles, more or less, almost all the roads are in good passable condition at all seasons of the year, save only when buried under deep snow. In New Jersey the movement in favor of road improvement has assumed sufficient magnitude to be ranked among the important engineering undertakings of the day. The specifications are carefully drawn and provide for road-beds sixteen feet wide graded to a depth of eight, ten, or twelve inches according to anticipated weight of traffic. All unfit material is removed and replaced with gravel, slag,

provided for by a central opening in the top of the shoe, through which water is forced at a pressure of 150 pounds to the square inch. Each carriage rests upon several of these shoes. Let us suppose the train to be at a stand, all the shoes resting squarely upon the rails. A valve is opened and water is forced through supply-pipes down through the opening of each shoe. It spreads under the shoe, and contact with the rail ceases—the train is literally *afloat*.

The water speedily leaks out around the edges of the shoes, but the supply is kept up from a reservoir mounted on the train, and under the requisite pressure from compressed air.

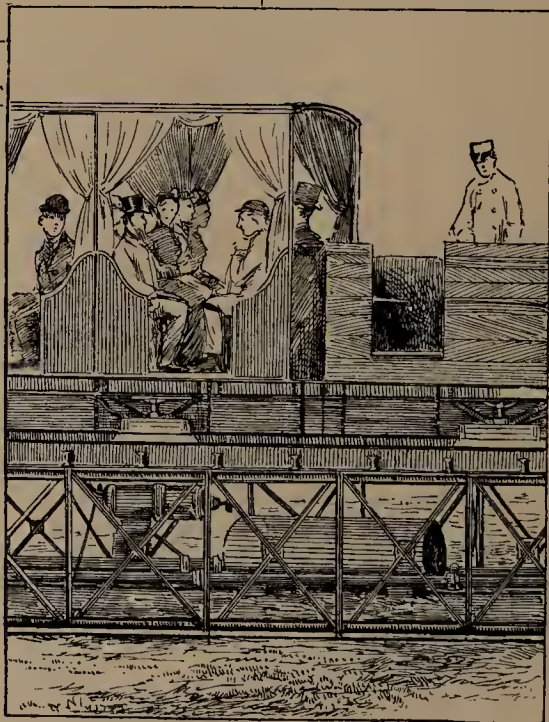
The motive power that drives the train is also hydraulic. Under each car is what may not inaptly be described as a reetilinear turbine—that is, a trough fitted with cross



HYDRAULIC RAILWAY.

or cinders. It is then well rolled with a five-ton roller. Foundation stones of trap rock are laid breaking joints, with the interstices filled with chips and spalls, and over this macadam in two courses rolled and filled in the most approved manner. Such roads are expensive as compared with the average country road, which is nearly impassable after a heavy rain, but they will very soon save their cost in wear and tear of vehicles and horse-flesh.

Hydraulic Railway.—Nothing at the Paris Exhibition attracted more universal attention than the "Chemin de Fer Glissant" of M. Barré. The little railway was five hundred feet long, supported by a light iron trestle about six feet high. The rails were of cast iron, nine inches wide, and rested on longitudinal timbers. The principle of the road is so simple that it can be easily understood. The invention originated with the late M. Gerard, inventor of a turbine wheel, but it has been brought to its present stage of development by M. Barré. It will be readily understood that if a large number of small spheres—fine shot, for instance—are placed between two flat metal plates, the plates will move easily one upon the other, even under considerable pressure. The principle is identical with that of anti-friction axle-bearings. If the plates are separated by a thin layer of water, the conditions for free movement are still more favorable, since water is composed of an infinite number of small globules with very little friction among themselves. The nine-inch rail, then, is one of the plates, and a flat *patin* or shoe, about eighteen inches long and nine inches wide is the other. With a thin layer of water between them it is evident that the one will move readily upon the other so long as the layer of water remains to separate the metal surfaces. This is



SECTION OF TRAIN.

blades. Along the track is a water main with stand-pipes at regular intervals, corresponding nearly with the total length of the train. When it is desired to set the train in motion, a valve is opened, through which a stream of water is projected into the buckets of the straightened-out turbine under the ears; so slight is the friction of the floating train that it at once moves off easily and smoothly. The stand-pipe continues to discharge water while the train is passing the first opening, upon which it closes automatically, and the work is taken up by the next stand-pipe. The working of the road excited the admiration of railroad experts from all over the world, and it appears to have done all, and more than all, that its inventor claimed for it. While it can only

be introduced where there is an adequate water-supply, there are, it is believed, many places where its advantages are obvious. The absence of noise, dust, and cinders, for instance, would render it very desirable on such lines as the elevated railways in New York.

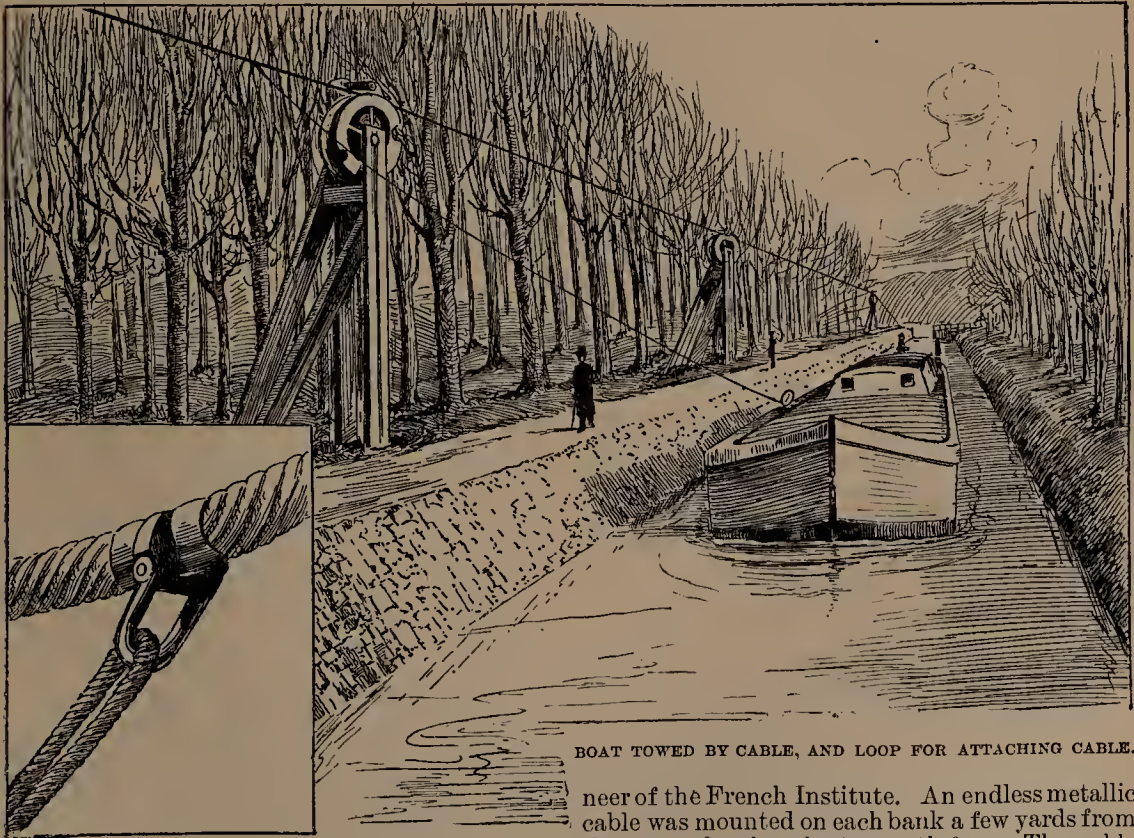
The consumption of water is far less than would at first thought seem unavoidable. The outflow from the shoes, as well as from the propelling apparatus, falls at once into suitable water-ways, and is used over and over again. The amount of water used in operating the experimental section in Paris is given by M. Barré as follows: 13 gallons a minute for each *patin* or shoe, and 8 gallons per ton, for a mile, under a pressure of 150 pounds. There is scarcely any resistance at all on a level, save from the air, which accounts for the moderate expenditure of water for propelling. The experimental section of 500 feet was passed over in 30 seconds, including starting and stopping—a rate of about eleven miles an hour, which is certainly very creditable for so short a line.

Eliminating non-essential details, the upper illustration shows A the car-body, B B the shoes or slides supposed to be separated from the track C C by a thin film of water. D is the water main discharging water through its nozzle E against the curved plates F F F F. The train moves as the arrow flies. The lower right hand illustration shows a portion of a car and attachments as they actually appeared in Paris.

It is said that Sir Edward Watkin, of the Metropolitan Railway of London, was so impressed with the excellence of the hydraulic system that he has authorized the construction of an experimental section near the city.

Electric Mountain Railway.—An interesting example of transmission of power by electricity is found in the railway up the Burgenstock near Lake Lucerne, Switzerland, which was opened to the public early in the summer. The power is generated by two dynamos driven by a water wheel, nominally of 125 horse-power, at the mouth of the river Aar, three miles distant. The power is transmitted through insulated copper wires with an estimated loss of about 25 per cent. The dynamos are each nominally 25 horse-power. A single pair of rails is used, the line being altogether 938 metres long, curving along the almost perpendicular side of the Burgenstock to a height of 1,330 feet above the lake. The gradient is 32 per cent. at the foot of the line, but is increased to 58 per cent. after the first 400 yards, and this is maintained to the summit. The action is said to be as steady and smooth as on an ordinary line.

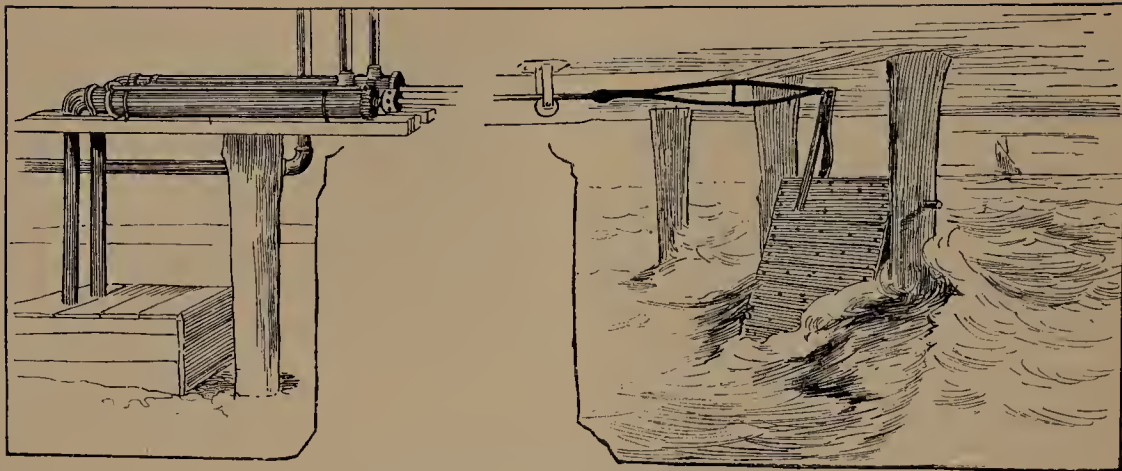
Cable Traction for Boats.—An interesting series of experiments has been instituted at the Junction of the St. Maur and St. Maurice canals, France, with a view to substitute traction cables supported on poles for the usual methods of propulsion, namely, tow boats, men, or animals. The matter was intrusted to M. Maurice Levy, an engi-



BOAT TOWED BY CABLE, AND LOOP FOR ATTACHING CABLE.

To reduce this seemingly simple apparatus to working order requires an elaborate system of valves and pipes that will no doubt be simplified when the principle is more fully developed.

neer of the French Institute. An endless metallic cable was mounted on each bank a few yards from the water, leaving the tow-path free. The cable runs over channeled pulleys as shown in the engraving. The cable has links at frequent intervals, as shown at the left of the figure, and the tow-line is passed through one of these, usually



WAVE-POWER EMPLOYED FOR PUMPING.

doubled, so that by casting off one end the connection with the moving cable is severed at any moment. The section of cable shown here represents it at an extraordinary height above the tow-path. At the regulation level it is within easy reach of the ground, and as the rate of speed is only about $2\frac{1}{4}$ miles an hour it is easy for a man to attach or detach the tow-line as required. Upon a straight stretch of canal a faster rate could no doubt be safely maintained. The notches shown in the periphery of the pulley are designed to facilitate the passage of the links.

Wave-Motors.—In the "Annual Cyclopædia" for 1886 was illustrated a rude pump actuated by wave motion, which was in actual use near Alexandria Bay. The idea has since been utilized on a larger scale along the sea-coast, where the regular and well-nigh ceaseless swell of the ocean furnishes an enormous amount of power that has heretofore gone to waste. The illustration represents one of a series of pumps established at Long Branch, where they were employed in pumping sea-water into tanks for use in various ways about the town and the hotels. A similar pump of far greater size and power was constructed near San Francisco, on the Pacific Coast, but was destroyed by a vessel that drove ashore during a gale. The device is so simple and the machinery so inexpensive that it would seem available for the translation of wave power in many places when no other natural source of energy is to be found.

ERICSSON, JOHN, engineer, born in Langbanshyttan, province of Wernland, Sweden, July 31, 1803; died in New York city, March 8, 1889. His father, Olaf, was a mine owner, and his mother, Sophie, was the daughter of an iron-master. Unfortunate investments in mining property had made the family poor at the time of John's birth. Of his childhood it has been said that he was impatient of routine, and of his peculiarities it has been written that "when scarcely out of leading-strings he made himself the victim of family discipline by stubbornly insisting upon going around on all fours, in a manner peculiar to himself and which nursery tradition could not tolerate." When he came to learn the alphabet he at once understood that the various letters shown him were but symbols, and was soon found at work with a sharp stick,

drawing in the sand of the lake beach signs which he proposed to adopt as a substitute for the Swedish alphabet. He received his earliest instruction from a Swedish governess, and then was taught by a German engineering officer. He developed extraordinary mechanical and mathematical genius, and before he was eleven years old produced a saw mill of ingenious construction, the frame of which was of wood, the saw-blade made from a watch-spring, and the crank cast from a broken tin spoon. He also planned a pumping engine to clear the mines of water. This work attracted the attention of Count Platen, then in charge of the Götha ship-canal, on which Ericsson's father was employed, and through his influence the boy, when he was twelve years old, was appointed a cadet in the Swedish corps of mechanical engineers. After six months' study, he was made a leveler on the ship-canal, and at the age of fourteen he was assigned to set out the work of a section, employing 600 soldier operatives. It was necessary for an attendant to follow him with a stool, on which he raised himself to the height of the leveling instruments. He occupied his leisure in preparing a set of drawings, showing the most important parts of the ship-canal as well as all of the machinery and implements used in its construction. He entered the Swedish army as ensign in 1820, and was soon promoted to a lieutenantancy, when he was assigned to the Royal Field Chasseurs of Jämtland. Shortly afterward he passed with distinction a competitive examination for an appointment on the survey of northern Sweden. His work in this capacity exceeded that of his fellows, and, as the surveying was paid for by the piece, he did double work. In order to avoid criticism, he was carried on the pay-rolls as two men. Meanwhile he undertook the preparing and engraving of a series of plates illustrating the Götha Canal. For this purpose he designed a line-engraving machine, by means of which, within a single year, he completed eighteen copper plates, each of 300 superficial inches. The utilization of flame as a means of developing mechanical power next engaged him, and he built a condensing-flame engine of ten horse-power. His drawings were shown to the king, Charles John, who, recognizing his wonderful ability, advised him to go

abroad, since his own country could not reward him as he deserved.

In 1826 he obtained leave of absence, to visit England and introduce the engine there; but he never returned to Sweden, and in the following year resigned his commission in the army, having meanwhile attained the rank of captain. The engine was not successful, as the flame produced by mineral fuel was far less in volume than that derived from a pine-wood fire, and the intense heat from the coal soon destroyed the working parts of the machine. New experiments were instituted, which resulted in the completion of an engine that Ericsson patented and sold to John Braithwaite. He then produced in rapid succession an instrument for taking sea soundings, a hydrostatic weighing machine, an apparatus for making salt from brine, a file-cutting machine, and many other devices, including tubular steam boilers and artificial draught by centrifugal fan-blowers, dispensing with huge smoke-stacks, economizing fuel, and showing the fallacy of the assertion that the production of steam was dependent on the amount of fire-surface. In the steamship "Victory" he made, in 1828, the first application to navigation of the principle of condensing steam and returning the water to the boiler, and in the same year submitted to the Admiralty his self-acting gun-lock, the peculiarity of which was that, by its means, naval cannon could be automatically discharged at any elevation, notwithstanding the rolling of the ship. He was unable to agree as to the terms of its adoption in the British navy, and then kept the secret of this invention until 1843, when he applied it to the wrought-iron guns of the "Princeton." In 1829 the Liverpool and Manchester Railway offered a prize of £500 for the best locomotive capable of fulfilling certain stipulations. Five locomotives entered the contest, and the "Novelty," planned and completed in seven weeks by John Ericsson, was placed on the trial ground. It exceeded its competitors in lightness, elegance, and speed, attaining the then amazing rapidity of thirty miles an hour; but the "Rocket," designed by George Stephenson, proved superior in traction, and was awarded the prize. In the "Novelty," Ericsson demonstrated the fallacy of the theory that a certain extent of surface was necessary for the generation of a given quantity of steam. He also introduced into its construction several new features, the four most important of which are retained in the locomotive of the present day. Nearly half a century later John Bourne wrote: "In locomotive engineering, nothing more original or more elegant has been produced than the 'Novelty.'" During the same year, Ericsson invented a steam fire-engine, and on the burning of the Argyle Rooms in London in 1829, "for the first time fire was extinguished by the mechanical power of fire." A larger engine, built for the King of Prussia, soon afterward saved valuable buildings at a fire in Berlin, and a third was built for the Liverpool docks in 1830. The Mechanics' Institute of New York city gave him in 1840 its great gold medal for the best plan of a steam fire-engine. In 1830 he introduced "link motion" for reversing locomotive engines, and a modification of this device is now in use on all loco-

motives. His famous caloric engine was given to the world in 1833. In this he endeavored to show that heat is an agent that undergoes no change, and that only a small portion of it disappears in exerting the mechanical force developed by steam engines. A working model of five horse-power was built, in which he placed the "regenerator." Lectures were delivered on it by Dr. Dionysius Lardner and Michael Faraday, and it was highly approved by Dr. Andrew Ure and Sir Richard Phillips. At first it proved unsuccessful, owing to the necessarily high temperature, which produced oxidation and destroyed the valves and other working parts. In 1853 the caloric ship "Ericsson," of 2,000 tons, was propelled by a motor on the same principle. A trial trip from New York to Washington and back showed great economy in fuel, but at a speed too slow to compete with steam.

For several years thereafter Ericsson devoted himself to the improvement of the stationary caloric engine, and nearly 10,000 such engines have been built, hundreds being employed in New York city for pumping water in private dwellings. In 1862 the American Academy of Arts and Sciences awarded the gold and silver Rumford medals to Ericsson "for his improvements in the management of heat, particularly as shown in his caloric engine in 1858." This was the second bestowal of this award, the first having been made to Robert Hare, in 1839, for his oxyhydrogen blow-pipe. In 1836 Ericsson invented and patented the screw-propeller that revolutionized navigation, and in 1837 he built a steam tug, the "Francis B. Ogden," with twin screw propellers, which on trial towed the American packet ship "Toronto" at the rate of five miles an hour on the river Thames. Subsequently the Admiralty barge was towed ten miles an hour; but, despite the practical demonstration, these dignitaries decided that "even if the propeller had the power of propelling a vessel, it would be altogether useless in practice, because the power being applied to the stern, it would be absolutely impossible to make the vessel steer." Francis B. Ogden, a pioneer in steam navigation on American waters, at that time United States consul in Liverpool, appreciated the value of the invention, and in 1838 he was interested with Ericsson in the construction of the iron-screw steamer "Robert F. Stockton," which crossed the Atlantic under canvas in 1839 and was afterward employed as a tug-boat on Delaware river for a quarter of a century. Through Mr. Ogden, Ericsson was presented to Com. Robert F. Stockton, who urged his coming to this country,

In 1839 he resigned his place in London as superintending engineer of the Eastern Counties Railway, and came to the United States in November. Com. Stockton exerted his influence with the authorities in Washington for permission to build a steamer from Ericsson's design, and under his own superintendence. A change of administration intervened, and it was not until 1841 that permission was given him to furnish designs for the screw war-ship "Princeton," the first vessel ever built with the propelling machinery below the water line out of the reach of hostile shot. Besides its screw propeller, the "Princeton" was remarkable for numerous me-

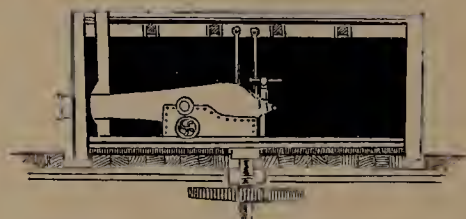
chanical inventions devised by Ericsson, such as a direct-acting semi-cylindrical steam engine of great compactness and simplicity, a telescopic smoke-stack, and independent centrifugal blowers for ventilation and for promoting combustion in the boiler-furnaces, which obviated the necessity of exposing the chimney during a battle. He also fitted it with wrought-iron gun-carriages, with mechanism for dispensing with breeching and taking up the recoil of the 12-inch wrought-iron gun (the first of its kind, and up to that time the largest and most powerful piece of ordnance mounted on shipboard), the self-acting lock refused by the British authorities, and an optical instrument to enable the commanding officer, by mere inspection, accurately to ascertain the distance of the object to be arrived at. Notwithstanding the tragic accident that attended its public exhibition in February, 1844—when, by the bursting of a 12-inch gun, built in the United States on the plan of the first, which

For the philosophical exhibits, he was awarded the prize medal of the exhibition.

Previous to 1836, Ericsson conceived the idea that was put into practical shape when, in September, 1854, he submitted to Napoleon III plans of a partially submerged armored vessel with guns in a revolving shot-proof cupola placed centrally on the deck.* These were not acted on until 1861, when they formed the suggestion of the "Monitor," which was designed and built by him in Greenpoint, N. Y., for the United States Government, under very arbitrary conditions. When the proposition to build this vessel was accepted, the only drawing completed by him was a mere outline and section to illustrate the stability of the structure; but by extraordinary energy and executive skill, calculations and working drawings were made, and the "Monitor" was launched with steam machinery complete one hundred days from the laying of her keel. She arrived in Hampton Roads just in



Ericsson brought with him from England, the Secretary of State, Secretary of the Navy, and other distinguished spectators were killed—the "Princeton" is correctly regarded as the pioneer of modern naval construction and as the foundation of the steam marine of the world. During the construction, and before the end of 1843, numerous propeller vessels were built and furnished with engines by Ericsson for carrying freight on the rivers and inland waters of the United States, and his propellers were in successful operation in more than sixty vessels in this country before any attempt was made to evade his patent. Up to this time European engineers were skeptical regarding the commercial value of the new method of propulsion, but the successful completion of the "Princeton" dictated the reconstruction of navies. A committee of the American Institute said of this vessel, "Nothing in the history of mechanics surpasses the inventive genius of Capt. Ericsson, unless it be the moral daring of Capt. Stockton in the adoption of so many novelties at one time." In 1851, in the United States division of the World's Fair held in London, Ericsson exhibited several of his inventions, including his instruments for measuring distances at sea, a hydrostatic gauge for fluids under pressure, a gauge for the volume of water passing through pipes, the alarm barometer, a pyrometer, an instrument for measuring fluids by the velocity with which they pass through definite apertures, and a self-registering deep-sea lead that is still employed by the United States Coast Survey, the principle of which was adopted in constructing the sounding apparatus used by the "Challenger" expedition.



ERICSSON'S "MONITOR," SECTIONAL VIEW AND REVOLVING TURRET.

time to defeat, on March 9, 1862, the Confederate iron-clad "Merrimac," which on the preceding day had destroyed the "Cumberland" and "Congress," and was about to sink or disperse the rest of the wooden vessels there. In England the success of the "Monitor" gave rise to the statement: "Yesterday England had a great navy; to-day she has but two vessels worthy of the name." No other revolution in naval architecture was so sudden, so startling, so decisive of mighty results, so dramatic, and of such abiding and growing importance. At the time of this battle the last installment of money had not been paid to the inventor, and a series of resolutions was adopted by the New York Chamber of Commerce asking of Congress "such suitable return as will evince the gratitude of the nation," but Ericsson replied: "All the remuneration I desire for the 'Monitor' I get out of the construction of it. It is all-sufficient." A fleet of

* A revolving turret was patented by Theodore R. Timby, who exhibited a model in 1841, and filed a caveat in the Patent Office at Washington in 1843. But Ericsson never admitted that Timby was the original inventor, claiming that the idea was old.

iron-clad vessels of the "Monitor" type was quickly built after the victory at Hampton Roads. Six of them in Charleston harbor, within fifty-two days, were struck by hostile shots an aggregate of 629 times without one penetration of side armor, turret, or pilot-house. The "Weehawken" defeated and captured the Confederate ram "Atlanta," and the "Montauk" destroyed the "Nashville." In August, 1864, the monitors captured the ram "Tennessee" in Mobile Bay. Russia, Sweden, Norway, and Turkey adopted the American turret system, and when the "Miantonomoh" visited Europe the British Government began the construction of similar vessels, but on a larger scale. In 1869 Ericsson built for the Spanish Government a fleet of thirty steam gunboats, which was intended to guard Cuba against filibustering expeditions.

Ericsson published in 1876 a volume entitled "Contributions to the Centennial Exhibition," devoted largely to description of his engineering constructions after he came to the United States. In it he says: "The commissioners of the Centennial Exhibition having omitted to invite me to exhibit the results of my labors connected with mechanics and physics, a gap in their record of material progress exceeding one third of a century has been occasioned. I have, therefore, deemed it proper to publish a statement of my principal labors during the last third of a century, the achievements of which the promoters of the Centennial Exhibition have called upon the civilized world to recognize."

In 1881 he devised his latest war-ship, the "Destroyer," which he invented to destroy the system of iron-clads that he had previously designed. This boat is of iron, 130 feet long, and carries a submarine 16-inch gun that discharges a projectile weighing 1,500 pounds, and containing 300 pounds of gun-cotton, against the hull of an iron-clad below the customary water-line armor-belt with such effect that water-tight compartments will be of no avail. The United States Senate passed a bill for the purchase of this vessel for the navy in 1885, but the bill failed to become a law.

For many years Ericsson devoted much of his time to scientific investigations. He computed the influences that retard the earth's rotary motion, and announced that the theory of the moon being devoid of water was erroneous, demonstrating that the great "ring mountains" could not be composed of volcanic matter—"mineral substances originally in a state of fusion"—but that they were inert glaciers made permanent as granite by perpetual intense cold. Subsequently he showed exactly how the annular glaciers were formed by vortex columns of vapor, and how the conical hills within the circular walls were formed. He claimed that the water on the surface of the moon bore the same proportion to its mass as the waters of the earth's oceans do to the terrestrial mass, and that the aggregate water of the moon is 2,028,600 cubic inches. He designed a pyrheliometer to show the intensity of the sun's rays, and made careful studies of the mechanical energy stored up in the sun. These studies led to his "sun motor," erected in New York in 1883, to the perfection of which the efforts of his last years were devoted. It was his purpose to condense the heat from the solar atmosphere,

and so provide fuel, without cost or transportation, at every point within the temperate and tropical regions of the world. That the motor can do this has been demonstrated. From the operation of this motor, he showed that the calculations made by Pouillet, Vicaire, Sainte-Claire Deville, and other French scientists, assigning to the solar surface comparatively low temperatures, were incorrect, and that Newton's far higher estimate on the same subject must be accepted. He erected a large solar pyrometer in 1884, and as a result of the investigation carried on by him during that summer he concluded that the temperature of the sun's surface was not less than 3,060,727° Fahr. The results of his many researches on scientific, naval, and mechanical subjects were given to the world in papers contributed by him to various journals in America and Europe.

Ericsson's genius was recognized by the King of Sweden, who conferred upon him various honors, and on his last birthday sent a special messenger with his congratulations. He was knight commander of the orders of Nordstjernan, Dannebrog (first class), Isabel la Catolica, Sanct Olaf, and knight of the order of Vasa. A special gold medal was sent him by the Emperor of Austria in recognition of his attainments in science, and he was the recipient of the grand cross of naval merit from Alphonso XII, of Spain. The thanks of Congress and of State Legislatures were voted to him. Wesleyan University gave him the degree of LL. D. in 1862, and he received the degree of Ph. D. from the Royal University of Lund, Sweden. He was a member of many scientific societies, both in this country and abroad, including the Royal Academy of Sciences in Stockholm and the American Society of Civil Engineers, and was an honorary member of the Union League Club. In 1867 a huge granite monument, quarried in one piece, was set in front of his birthplace, bearing the inscription in the Swedish language: "John Ericsson was born here, July 31, 1803." On the roadside leading to his old home stands an iron pyramid with an inscription testifying to his fame. Ericsson married an English woman in 1829, but she died twenty years ago, and, as he was without direct heirs, his property was bequeathed to his relatives in Sweden. During his residence in New York he lived at 36 Beach Street, where he passed a solitary life, refusing to see any one but his immediate associates in business affairs, and leaving his home only at night to indulge in lonely walks. He was exceedingly methodical in his habits and temperate as to his food, eating sparingly of the most nutritious varieties and abstaining entirely from alcoholic drinks and tobacco. His genius manifested itself most conspicuously by his wonderful power of concentrating his mind on the subject at hand. His mental control of details was so great that he could at once describe with exact measurements a part of a machine without working drawings. William C. Church has in hand the preparation of his biography from papers specially left to him. See "Ericsson and his Inventions," in the "Atlantic Monthly," for July, 1862; and "John Ericsson," in "Scribner's Monthly," for April, 1879, and "Scribner's Magazine," for February and March, 1890.

Eriesson was a constant contributor to the periodical press. His scientific articles were usually published in "Nature" and "Engineering," London; the "Scientific American" and "American Artisan," New York; his articles on naval architecture, gunnery, and torpedoes in "Engineering" and in the "Army and Navy Journal."

EVANGELICAL ALLIANCE. A General Christian Conference, called under the auspices of the Evangelical Alliance to consult upon the needs of society and the best means of combating the moral and social evils of the day, met in Boston, Mass., Dec 4, 5, and 6. It was the second conference of the kind that has been held, the previous one having met in Washington, D. C., in 1887. Mr. William E. Dodge presided. The papers read on the first day of the meetings concerned the moral and intellectual needs of various classes in the American community. The Rev. Josiah Strong, General Secretary of the Evangelical Alliance, made an address on the "Progress of Co-operation since the Washington Conference." Co-operative Christian work had been begun in fifteen States and Territories and about twenty cities, and in Baltimore a house-to-house visitation had been undertaken for the purpose of reaching the non-church-going masses. An account of the work that had been done in the State of New York was given by Mr. R. F. Cutting. The papers on the special topic of the day were on "The Needs of the City," by Prof. R. T. Ely, Ph. D., and the Rev. Josiah Strong; "The Needs of the Rural Districts," by the Rev. Henry Fairbanks; "The Mountain Whites of the South," by Rev. Frank E. Jenkins; and "The Needs of the Times and the Alliance Methods," by Rev. J. M. Buckley, D. D., LL. D., Rev. Frank Russell, D. D., and Dr. J. L. Phillips. On the second day, the various aspects of Christian co-operation were discussed in papers on "Christian Co-operation in awakening and directing the Moral Sentiment of the Community," by the Rev. Moses D. Hoge, D. D., Archdeacon Alix Mackay-Smith, D. D., and Rev. Wayland Hoyt, D. D.; "Christian Co-operation in Relation to Moral Legislation"—*a*, "Its Enactment," by Prof. Theodore W. Dwight, LL. D., and Prof. C. J. Little; and *b*, "Its Enforcement," by Rev. Howard Crosby, LL. D., and the Hon. Walter B. Hill; "The Need of permeating our developing Civilization with the Spirit of Christ," by the Rev. L. T. Chamberlain, D. D.; "Christianity and the State," by the Rev. D. H. Greer; and "The Gospel and the People," by Bishop F. D. Huntington. Questions relating to immigrants were considered in papers on "Our Debt and Duty to the Immigrant Population," by Prof. E. J. Wolf, D. D.; "French Canadians in the United States," by the Rev. C. E. Amaron; and "Slavonic Populations in the United States," by the Rev. H. A. Schaffner. The papers of the closing session were on "Arousing and training the Activity of the Laity," by the Rev. Graham Taylor, D. D., and the Rev. Joseph Cook; "Need of an Enthusiasm for Humanity on the Part of the Churches," by the Rev. Phillips Brooks, D. D.; and "Need of Personal Contact between Christians and Non-Church-Goers," by the Rev. C. H. Parkhurst, D. D.

Canadian Conference.—The second annual Conference of the Evangelical Alliance for the

Dominion of Canada was held in Toronto, Dec. 3 to 5. Mr. W. H. Howland, of Toronto, presided. The secretary reported that branches of the Alliance had been formed or affiliated at twenty-five places in Ontario, Quebec, Nova Scotia, and New Brunswick. At the beginning of his work, in the earlier part of the year, the public had responded readily to his presentations, but later on the "equal-rights movement" had absorbed attention. The permanent headquarters of the Alliance was fixed at Montreal. Topics were discussed relative to Sabbath observance and Christian unity. Principal Caven condemned the tendency to regard the necessities of modern convenience as an element in determining how the Sabbath should be observed. Mr. Elliott F. Shephard represented the American Sabbath Union. The Rev. Dr. Laidlaw, of Hamilton, spoke of the duty of the individual in relation to the Sabbath. The subject of Christian unity was considered especially in its relations to the movements of the Roman Catholic Church. The Rev. Dr. A. Sutherland showed that the contest between the Protestant and Roman Catholic systems was at present one of ideas. The Rev. A. B. Cruchet advised charity and justice in dealing with the French-Canadian problem. The question was not so much how to check the French Canadians as to make anew their secular and political education. He was convinced that evangelization furnished the only way to secure the peaceful and early union of those people with their Protestant compatriots. The Rev. Prof. MacLaren, of Knox College, spoke of the obligations of Christian unity, but regarded it as a matter of fact rather than of obligation. Principal Grant maintained that Christian unity should be sought on its own merits, and not as a means of attack. The Alliance existed not to attack others, but to do its own work and accomplish as much union of the Church of Christ as it could.

EVANGELICAL ASSOCIATION. The "Christian Family Almanac" for 1890 gives the statistics of this denomination: Number of conferences and missions, 26; of itinerant preachers, 1,187; of local preachers, 658; of members, 145,703; of baptisms—2,486 of adults and 9,936 of children; of churches, 1,958, the probable value of which was \$4,758,527; of parsonages, 651, having a total value of \$802,842; of Sunday-schools, 2,466, with 27,579 officers and teachers, and 169,786 pupils; of catechumen classes, 781, with 10,203 catechumens. Amounts of collections—for conference claimants, \$7,891; for the Missionary Society, \$113,183; for the Sunday-school and Tract Union, \$2,850; for the Orphan House, \$5,519. The Japan mission, the statistics of which are included in the summary, returned 8 itinerant and 4 local preachers, 5 churches, 333 members, 85 baptisms of adults and 21 of children, 13 Sunday-schools, with 50 officers and teachers and 441 pupils and 91 catechumens. The whole amount contributed by it for general church work, etc., was \$532. A general weekly newspaper in English and one in German, and eight Sunday-school and missionary papers in English, and six in German, are issued from the Publication House in Cleveland, Ohio, and two German periodicals from the branch house in Stuttgart, Germany.

EVANGELICAL UNION OF SCOTLAND.

The annual conference of this Church met in Glasgow, Oct. 7. The session was chiefly remarkable for its coincidence with the fiftieth year of the ministry of the Rev. James Morison, founder of the society, and was made the occasion of offering him a jubilee testimonial. Mr. Morison, a minister of two years' standing in the United Presbyterian Church of Scotland, was tried and excluded in 1841 for preaching the doctrine of a full and free salvation for all men through Christ. With his adherents he founded the Evangelical Union, which developed into a considerable organization, more liberal in theology than the Presbyterian Churches, and affiliated in polity with the Congregational Churches. For several years a correspondence has been kept up between it and the Cumberland Presbyterian Church in the United States. The demonstration in honor of Dr. Morison was participated in, in person or by letter, by representative men of most of the large Evangelical Churches of the country, including the Kirk, Free Church, and United Presbyterian Church of Scotland; Principal Fairbairn, of the English Presbyterian Mansfield College; the Congregational Churches; Prof. Godet, of Switzerland; the Rev. J. L. Goodeknight, of the Cumberland Presbyterian Church, and others. Mr. John Willson, M. P., presided. In the addresses, Principal Cairns, representing the Church from which Dr. Morison had been expelled, said that he believed he spoke the feeling of the United Presbyterian Church when he said that toward Dr. Morison there was a spirit so kindly, a respect so deep and sincere, that on higher grounds they were thankful that the measure of agreement between them was so great in regard to Christian theology. Besides the presentation of money and plate, a portrait of Dr. Morison was unveiled.

EVENTS OF 1889. Not many events of great importance took place during the year. The almost peaceful revolution in Brazil on Nov. 15 promises perhaps to be the most far-reaching in its effects. There have been no wars save such as are always waging among the minor or savage nations. Europe has seemed at intervals to be on the verge of hostilities, but the interchange of diplomatic courtesies between sovereigns has temporarily at least restored the equilibrium. In Russia several Nihilist plots have been discovered, and the life of the Czar has as often been threatened. In Spain, too, the royal family has been threatened by the plots of assassins. In the United States the most important events have been the inauguration of a new President and the consequent political changes; the assertion of our traditional rights in the Behring Sea; and International Congresses held at the instance of the Government at Washington, one in the interest of closer commercial relations among states of North, South, and Central America, and the other for a better understanding among the great maritime powers of the world.

January 1. Total eclipse of the sun, visible in the western part of North America.

2. Congress reconvenes after the holiday recess. New Hampshire Constitutional Convention organized.

4. Congress: The House passes the bill to incorporate the Nicaragua Canal Company.

6. News received of a conflict in Samoa between Mataafa, one of the rival native kings and the Germans; Mataafa was repulsed; considerable losses on both sides. China demands that Corea depose her king and become tributary to China. A new Panama Canal Company formed in France.

8. State Legislatures meet in California, Colorado, Dakota, Florida, Kansas, and Ohio.

11. Africa: The King of Uganda deposed by his body-guard, and his brother installed in his stead. The Royal College of Physicians and Surgeons censures Dr. Morell Mackenzie for the publication of his book on the case of the late Emperor of Germany.

12. Congress: The House passes the pension bill and the appropriation bills for the Military Academy and diplomatic and consular expenses. Several men killed in Gray County, Kansas, in a fight between rival political factions over the county records. Arab slave dealers attack the German missionary station at Dar-es-Salem, near Zanzibar, but are repulsed with heavy loss.

14. Germany: The Landtag is opened by the Emperor.

15. Senator Hoar of Massachusetts, Senator Frye of Maine, E. O. Wolcott of Colorado, and Anthony Higgins of Delaware are elected Senators of the United States. Judge Tulley of Chicago decides that the Socialist Arbeiter Bund has a right to meet unmolested by the police.

16. Africa: A letter received from Stanley, the explorer, dated on the Aruwimi, Aug. 17, 1888.

17. Inauguration of the Governors of North Carolina and Arkansas. Arab slave dealers attack a German mission station in East Africa; all the inmates killed save one, who escapes. The United States cruiser Atlanta is ordered to Hayti. France: The Senate passes the Panama Canal Bankruptcy bill. England: The Liberals carry the London municipal election.

18. A statue of Franklin, by Stilson Hutehins, unveiled in Washington.

19. Congress: Fortifications bill passed by the House. Three negroes killed in a race conflict in Georgia.

20. Riot near Graham, Texas; six men killed.

21. Twenty-first annual convention of the National Woman's Suffrage Association meets at Washington.

22. Congress: The Senate passes the substitute for the Mills bill; the House refuses to take up the Smalls-Elliott election case; debates the River and Harbor bill. Africa: Fighting renewed between Germans and Arabs in the vicinity of Zanzibar.

26. General "tie-up" of street railroads in Brooklyn, N. Y.

29. General "tie-up" of street railroads in New York city.

30. Austria: The Crown-Prince Rudolph commits suicide.

31. Congress: Senate, the Samoan amendments are adopted; House, the Oklahoma bill is debated.

February 1. Congress: The President submits Samoan correspondence; Senate, the British extradition treaty rejected by a decisive vote; House, the Oklahoma bill is passed, and conference report adopted decreeing the creation of a Department of Agriculture.

2. Congress: House, Naval Appropriation bill passed with provision for a coaling station at Pago Pago, Samoa. Hayti: United States marines landed to protect a naval officer. Samoa-German proclamation of martial law withdrawn. France: The Government is sustained in a vote on the *scrutin d'arrondissement* question.

4. France: The old Panama Canal Company is dissolved.

5. Austria: Funeral of the Crown Prince. Street-car strike ends in New York, the strikers having failed to gain their point.

6. Congress: House adopts conference report on Nicaragua Canal bill (177 to 60). China: Houses of

foreigners, including the British consulate, wrecked by rioters at Ching-Kiang-Foo.

8. Congress: The President submits correspondence with Germany in regard to a Samoan conference. Africa: Captured Catholic missionaries released by Arabs on payment of a ransom by the Germans.

9. Congress: The Senate passes a bill to establish a United States court in Indian Territory, and passes the Fortifications bill.

11. Congress: Senate, \$250,000 appropriated for the protection of American interests in Panama; House, the Smalls-Elliott election case is debated; the President signs the bill to create a Department of Agriculture, and appoints Norman C. Coleman of Missouri, to be Secretary. France: The *scrutin d'arrondissement* bill passed by the Chamber of Deputies. Japan: The Constitution of the Empire is proclaimed.

12. Congress: The President transmits correspondence relative to the Behring Sea question; Senate, election irregularities in Texas considered; Naval Appropriation bill passed; House, Small's contested election case debated.

13. Congress: In joint session the electoral vote is counted and Benjamin Harrison and Levi P. Morton are declared elected President and Vice-President of the United States; House, the Smalls contested election case is decided in favor of Elliott.

14. Congress: Senate, Mr. Hoar calls for a report on the customs frauds in New York; House, vote passed to eliminate New Mexico from the Territorial bill (135 to 106). France: The Government is defeated on a vote to revise the Constitution (307 to 218), and the ministry resigns. Japan: The Minister of Education, Viscount Arinori More, assassinated by a religious fanatic.

15. Gen. Gilman Marston, of New Hampshire, is appointed Senator of the United States. Congress: Mr. Mills reports adversely the Senate Substitute Tariff bill; House, Representatives in the conference committee are instructed to yield to the Senate committeemen on the Territorial bill. France: President Carnot asks M. Meline to form a new ministry.

20. Congress: Both Houses agree to conference report on Territorial bill; House, conference report on direct tax bill adopted and bill sent to the President. Correspondence in the case of Lord Sackville transmitted to the Senate. Treaty of commerce with Japan signed by Minister Hubbell. The American Pomological Society meets at Ocala, Fla.

21. Congress: House, the Post-Office bill is passed. Senator Kenna is re-elected in West Virginia. England: Parliament reassembles. France: A new ministry is formed by M. Tirard.

22. Congress: House, Mr. Mills's resolution respecting the Senate's action on the tariff question is defeated (143 to 88); the bills to retire Gen. Rosecrans and pension the widow of Gen. Sheridan are passed.

23. Chili prohibits Chinese immigration.

24. France: Socialist meetings dispersed by the police.

26. Congress: Senate, the Army Appropriation bill is passed; Mr. Spooner introduces a bill for the supervision of Congressional elections; House, bills introduced for the admission to the Union of the Territories of Arizona, Idaho, Wyoming, and New Mexico. The President-elect arrives in Washington.

27. Congress: Senate, bill passed to protect salmon fisheries in Alaska; bills introduced to admit Wyoming and Utah to the Union; House, Indian Appropriation bill passed. The Vice-President-elect reaches Washington.

28. Convention of the National League of Republican Clubs opens in Baltimore. A convention of delegates from commercial bodies in the interest of a new bankruptcy law, is held in St. Louis. Congress: Senate, the Post-Office bill is passed; amendments to interstate commerce act are voted down. France: The Government decides to suppress the Patriotic League.

March 1. Congress: Senate, Secretary Fairchild transmits report of investigation on sugar frauds;

House, joint resolution passed in favor of commercial union with Canada. England: Mr. Morley's offered criticism on British policy in Ireland defeated in Parliament (339 to 260).

2. Canada: Parliament rejects a motion to continue the *modus vivendi* regarding the United States (108 to 65). France: The Chamber of Deputies approves the suppression of the Patriotic League.

3. Senator Riddleberger is placed under arrest for violating the rules of the Senate.

4. Benjamin Harrison is inaugurated President of the United States. Congress: Senate, conference report on deficiency and sundry civil bill adopted. Levi P. Morton installed Vice-President and new Senators sworn in; House, resolution passed complaining of discourtesy on the part of the Senate. Anarchists renew their meetings in Chicago.

6. Eight members of the new Cabinet take the oath of office, namely, James G. Blaine, Maine, Secretary of State; William Windom, Minnesota, Treasury; Redfield Proctor, Vermont, War; William H. Miller, Indiana, Attorney-General; John Wannamaker, Pennsylvania, Postmaster-General; Benjamin F. Tracey, New York, Navy; John W. Noble, Missouri, Interior; Jeremiah M. Rusk, Wisconsin, Agriculture. Serbia: The King abdicates in favor of his son, aged thirteen, who takes the throne as Alexander I. Africa: The Germans have captured Bagomoyo, defeating the Arabs with great loss.

7. Congress: Senate, Mr. Ingalls elected President of the Senate *pro tem*. Italy and Serbia: New ministries formed.

8. John Ericsson, scientist and inventor, dies. France: The Bank of France advances 100,000,000 francs to the Comptoir d'Escompte to meet the withdrawal of deposits.

9. The President and his Cabinet hold their first meeting. The National Association of School Superintendents meets at Washington. France: The Chamber of Deputies revokes the decree of exile against the Duc d'Aumale.

11. The President makes the following nominations: Thomas W. Palmer, Minister to Spain; John F. Swift, to Japan; John D. Washburn, Consul-General to Switzerland; George C. Tiehenor, to be Assistant Secretary of the Treasury. Six thousand weavers go on strike at Fall River, Mass. Chicago division of the Wabash Railroad sold for \$3,500,000. Sir Julian Pauncefote appointed Minister from Great Britain to the United States.

12. The Supreme Court of West Virginia declares that Gov. Wilson shall retain office until the result of the election is declared. F. W. Dawson, editor of the Charleston, S. C., "News and Courier," is shot by Dr. F. B. McDow, who gives himself up. Congress: The President sends the following nominations to the Senate: Ex-Gov. Porter, of Indiana, to be Minister to Italy; John Enader, of Illinois, Minister to Denmark; A. C. Mellette to be Governor of Dakota; George S. Batcheller to be Assistant Secretary of the Treasury.

13. Congress: The President nominates Eugene Schuyler to be Assistant Secretary of State (rejected), Walker Blaine to be Examiner of Claims, Cyrus Bussey to be Assistant Secretary of the Interior.

14. The Supreme Court of West Virginia decides that Senator Carr has no claim to the governorship. Congress: The President nominates James S. Clarkson to be First Assistant Postmaster-General, and John A. Kasson, William Walter Phelps, and George H. Bates to be commissioners to Berlin. Newfoundland: The Government denies the right of American fishermen to buy bait in Newfoundland ports.

16. Senator Chace, of Rhode Island, resigns his seat in the United States Senate. Africa: The Mahdist forces are defeated with heavy loss by Senoussi.

17. The Pope formally acknowledges the efforts of Canadian bishops to secure his temporal power.

18. Congress: Senate, William W. Thomas nominated to be Minister to Norway and Sweden, Samuel R. Thayer Minister to the Netherlands, Smith A.

Whitfield and A. D. Hazen to be Second and Third Assistant Postmasters-General, Charles E. Mitchell to be Commissioner of Patents, and John W. Mason to be Commissioner of Internal Revenue. France: The Duc d'Aumale is elected a member of the French Academy.

20. Congress: F. D. Graut nominated Minister to Austria, John C. New to be Consul-General at London. England and America officially in accord on the Samoan question.

21. Congress: Miles C. Moore nominated for Governor of Washington Territory.

22. Stanley Matthews, Associate Justice of the Supreme Court, dies. Germany: The action of the consul at Samoa officially disapproved.

23. Congress: James Tanner nominated to be Commissioner of Pensions, Whitelaw Reid Minister to France, Julius Goldschmidt Consul-General at Vienna. Africa: News received that Emin Pasha has routed 6,000 dervishes.

24. Chicago Anarchists celebrate the eighteenth anniversary of the Paris Commune.

26. Congress: Francis E. Warren nominated to be Governor of Wyoming, and Benjamin F. White to be Governor of Montana. The King of Holland is declared incapable of reigning.

27. The Fall River strike ends. The President nominates Robert T. Lincoln Minister to England, Murat Halsted to Germany, Allen Thorndike Rice to Russia, George B. Loring to Portugal, Patrick Egan to Chili, and Thomas Ryan to Mexico. England: John Bright and the Duke of Buckingham and Chandos die. The Queens of England and Spain meet at San Sebastian.

28. Congress: The Senate refuses to confirm Murat Halsted as Minister to Germany.

29. A deputy United States marshal is killed by a band of outlaws in Kentucky. Congress: Senate—Robert Adam, Jr., nominated Minister to Brazil, L. B. Mizner to Central American states, William L. Scruggs to Venezuela, William O. Bradley to Corea, and George L. Shoup to be Governor of Idaho. France: The Government decides to prosecute Gen. Boulanger. Russia: A plot to assassinate the Czar discovered and many arrests made.

30. Congress: The Senate reconsiders its vote on Murat Halsted's nomination, but still refuses to confirm his appointment; nominations are made of John T. Abbott as Minister to Colombia, and E. H. Terrill as Minister to Belgium; ten delegates to the American International Congress are nominated. England: Funeral of John Bright.

31. Cardinal Gibbons, on behalf of the American Catholic bishops, receives a letter from the Pope.

April 1. The United States gunboats Richmond, Alert, and Adams are ordered to Samoa to replace the vessels lost in the hurricane of Feb. 14. (See DISASTERS.) In St. Louis 3,000 carpenters strike for higher wages. Congress: S. N. Huston, of Indiana, nominated to be Treasurer of the United States. Germany: The cruisers Sperber and Alexandrine are ordered to replace those wrecked at Samoa Feb. 14. Africa: Stanley heard from under date of Sept. 4.

2. Congress: Senate, Robert J. Fisher nominated to be Assistant Commissioner of Patents. Senate adjourns *sine die*.

3. Africa: King John of Abyssinia defeated and slain. France: Gen. Boulanger issues a manifesto to the French people from Brussels. Roumania: The ministry resigns.

4. France: The Chamber of Deputies sanctions the prosecution of Gen. Boulanger.

5. Cornelius Van Cott appointed postmaster at New York.

11. Strike of street railroads in Minneapolis. The Duke of Nassau takes oath of office as Regent of the Grand Duchy of Luxemburg.

12. Lyman E. Knapp is appointed Governor of Alaska. The New York Assembly votes to move the State Prison from Sing Sing. France: The trial of Gen. Boulanger is begun before the Senate court.

16. The Richmond and Alleghany Railroad is sold to the Chesapeake and Ohio for \$5,000,000. The National Academy of Sciences meets in Washington. Wm. P. Hepburn appointed Solicitor of the Treasury.

17. Robert P. Porter appointed Superintendent of the Census, and E. C. Lacy Comptroller of the Currency. Prof. O. C. Marsh of Yale elected President of the National Academy of Sciences.

19. Russia: A Nihilist plot to assassinate the Czar discovered.

22. The district of Oklahoma thrown open to settlers. Several fatal encounters take place among rival claimants of homesteads. Prohibitory amendment to the Constitution of Massachusetts defeated.

24. Government dry-dock, the largest in the United States, opened at Newport News, Va. England: Gen. Boulanger and his party arrive in London.

25. Several deaths from exposure are reported from Oklahoma. Roumania: Prince Ferdinand is announced as heir to the throne.

26. Dr. Daniel Dorchester, of Boston, is appointed Superintendent of Indian Schools.

27. "Buffalo Bill's Wild West" sails on its two years' trip through Europe. Death of President Barnard, of Columbia College.

28. Lord Londonderry resigns as Lord Lieutenant of Ireland.

29. Germany: International Conference opens at Berlin concerning Samoan affairs. Spain: A Catholic Congress in Madrid demands the restoration of the Pope's temporal power. Centennial celebration in honor of Washington's first inauguration as President opens in New York (see May 1).

30. The Washington Centennial is observed in many of the large cities and towns of the United States, and even in Montreal, Canada.

May 1. End of the Centennial celebration in New York.

3. Sir Julian Pauncefoot, the new British Minister, is presented to the President.

5. The centennial of the French Revolution is celebrated at Versailles and various other foreign cities.

6. France: The Universal Exposition is formally opened in Paris.

7. Frank W. Palmer appointed public printer. Theodore Roosevelt and Hugh S. Thompson appointed Civil Service Commissioners.

8. The International Young Men's Christian Association Convention opens in Philadelphia. Germany: Conflict between strikers and the military at Essen, several killed.

10. Fatal encounters between the military and striking miners in Westphalia, Germany.

12. Highwaymen attack the escort of an army paymaster in Arizona and secure \$30,000, killing and wounding several men. Germany: Strikers are fired upon by the military at Schleswig, and six persons are killed.

13. The Supreme Court declares that the Chinese exclusion act is valid, and gives an opinion in favor of the heirs of Myra Clark Gaines in their suit against the city of New Orleans. Germany: Nearly 100,000 miners are "on strike" in the Westphalian mining regions.

15. Western bondholders bid off the Wabash line for \$15,500,000.

16. Meeting of the General Assemblies of the various branches of the Presbyterian Church. Solomon Hirsch appointed Minister to Turkey, Clark E. Karr to Denmark, Henry W. Leverance to be Consul-General at Honolulu, John Jarrett to be consul at Birmingham, and Thomas H. Sherman at Liverpool. Election riots with fatal results occur in Arkansas.

17. Germany: Government pressure has been brought to bear upon the mine-owners in Westphalia with a view to ending the strike. Russia: An army plot against the life of the Czar has been discovered.

19. Excitement prevails at the scene of the Arkansas election riots.

20. Survivors of the Samoan disaster reach San Francisco.

22. Dr. Cronin, of Chicago, supposed to have been murdered by Irish conspirators; his body found.

23. Russia: The Shah of Persia is the guest of the Czar at St. Petersburg.

24. A monument to Confederate soldiers dedicated at Alexandria, Va. B. T. Gilkison appointed Second Comptroller of the Currency, S. B. Holliday Commissioner of Customs.

25. A detachment starts for Nicaragua to begin work on the interoceanic canal. France; Gen. Boulanger resolves to contest all elections.

27. Troops are ordered out to disperse striking miners at Braidwood, Ill. Fatal anti-progressionist riot in Belgrade.

28. Indictments found by the grand jury in Chicago in the case of Dr. Cronin.

29. Orlow W. Chapman is appointed Solicitor-General of the United States and John B. Colton Assistant Attorney-General.

31. Gen. Hyppolite captures Port-au-Prince and proclaims himself provisional President of Hayti. The Samoan Conference submits a protocol to the German and American governments.

June 1, Lord Zetland is appointed Viceroy of Ireland.

5. The American International Congress of Medical Jurisprudence meets in New York.

6. A commercial treaty ratified between Mexico and Japan.

9. Germany: The Shah of Persia arrives at Berlin. France: A Boulangist meeting is dispersed by the police.

11. A verdict is returned in the Cronin case, recommending the trial of certain suspected persons.

12. Michigan and New York Veterans dedicate monuments at Gettysburg. The Army of the Potomac holds its annual reunion at Orange, N. J.

14. United States troops are sent to quell an outbreak among the Chippewa Indians in Minnesota. The commissioners for Germany and the United States sign the agreement in regard to Samoa.

19. William E. Chandler is chosen United States Senator from New Hampshire.

26. William Walter Phelps appointed Minister to Germany. Gen. Simon Cameron dies. Commencement exercises at Yale, Harvard, Wesleyan, Union, Williams, Lafayette, and other colleges. Portugal cancels the concession for building a railroad at Delagoa Bay, and thereby involves herself in difficulties with England.

27. Secretary Tracy issues orders reorganizing the administrative departments of the navy.

28. Maria Mitchell, the astronomer, dies at Lynn, Mass. Yale defeats Harvard in the annual boat-race at New London.

29. Indictments are returned by the grand jury against persons suspected of the Cronin murder.

July 1. Ex-President Woolsey, of Yale, dies. The President makes the following appointments: A. L. Snowden, Minister to Roumania, Servia, and Greece; W. H. Edwards, Consul-General at Berlin; Eugene Schuyler, Consul-General at Cairo. Money-order convention signed by the Postmaster-General and the German Minister. The Sixth New York Cavalry dedicates a monument at Gettysburg. The Shah of Persia is escorted to London by the Prince of Wales. Italy: The Government orders the demolition of 17,000 houses and 62 churches in Naples for sanitary reasons.

2. Consolidation effected between the Cincinnati, Indianapolis, St. Louis and Chicago Railway and the Cleveland, Columbus, Cincinnati, and Indianapolis Railroad. England: The International Sunday-School Convention begins its sessions in London. Alexander I is anointed King of Servia. The Norwegian ministry resigns.

3. England: The Massachusetts rifle team defeats the team of the London rifle brigade. Egypt: Battle between Egyptians and dervishes. The latter defeated with a loss of 500 killed and 500 wounded. Portugal accepts arbitration in regard to the Delagoa

Bay affair. Commencement at Amherst College and Colby University.

4. The President makes a Fourth of July address at Woodstock, Conn. Conventions held in North and South Dakota, Montana, and Washington Territories looking to admission as States. Commencement at William and Mary College. England: The Massachusetts rifle team defeats the Sussex team.

5. England: The Massachusetts team defeats the London Rifles.

6. Labor riot at Duluth. Senate Committee on Canadian Railroads and Interstate Law in session at Boston. Samoa: News of a treaty of peace between Mataafa and Tamasese, the rival claimants to the throne.

8. Prize-fight between Sullivan and Kilrain at Richburg, Miss.

9. The President appoints Horace A. Taylor to be Commissioner of Railroads and Prof. T. C. Mendenhall Superintendent of the Coast Survey. The Christian Endeavor Convention in session at Philadelphia.

11. Annual meeting of the American Philological Society at Easton, Pa. Strike riot in the Carnegie Steel Works at Homestead, Pa. Sullivan, the prize-fighter, arrested in Tennessee for fighting in Mississippi. Africa: The Germans bombard and occupy Tanga.

13. Anarchists in New York and vicinity celebrate the centennial anniversary of the fall of the Bastille.

14. Strike ends at the Carnegie Steel Works.

15. National Teachers' Association meets at Nashville, Tenn. The centennial anniversary of the fall of the Bastille is further celebrated by Frenchmen in New York. France: The session of the Chamber of Deputies closes. In Paris the International Socialist Congress begins.

16. England: Mr. Parnell withdraws his counsel from the Commission of Inquiry.

17. The Civil Service Commission recommends the removal from office of Postmaster Paul, of Milwaukee.

18. The Mayor of New York calls a meeting with a view to holding a World's Fair in 1892. Dr. T. B. McDow expelled from membership in the South Carolina Medical Society. Brazil: A Portuguese attempts to kill the Emperor Dom Pedro at a theatre in Rio.

19. Capt. George Dewey appointed chief of the Naval Bureau of Equipment and Recruiting. Gen. Boulanger formally announces that he will stand for election in 80 cantons in the coming elections.

22. Dr. McDow is forced to resign from two military associations of which he was a member. England: The parliamentary committee on royal grants recommends that the quarterly allowance of the Prince of Wales be increased by \$45,000.

23. Abuses suspected in the Pension Office. A committee is appointed to investigate. Belgium: A grant of \$2,000,000 for the Congo Railway.

24. A large party of skilled artisans, men and women, sail on the City of Rome to visit the Paris Exposition and industrial centers of Europe.

25. England: Golden wedding of Mr. and Mrs. Gladstone.

27. England: Marriage of the Duke of Fife and Princess Louise of Wales. Mrs. Maybrick, an American, is indicted for the murder of her husband in London. (See Aug. 7.) Italy: A plot discovered to blow up the Vatican in Rome.

28. In Cincinnati 150 liquor sellers are arrested for violating the Sunday closing law. France: General election in 1,344 cantons; Gen. Boulanger elected in 12 cantons.

29. Five persons charged with the murder of Dr. Cronin and arraigned in Chicago. British sealing schooner Black Diamond seized by United States vessel in the Behring Sea.

30. France: The Shah of Persia visits Paris. Egypt: Engagement with the dervishes, 60 of the latter slain.

31. Dominion of Canada: Order granted for the extradition of Martin Burke, charged with the murder of Dr. Cronin. Scotland: Death of Horatio Bonar.

August 1. Dedication of Pilgrim monument at Plymouth, Mass. England: The Emperor of Germany arrives.

3. J. R. G. Pitkin is appointed Minister to the Argentine Confederation. Egypt: The dervish army routed by English troops under Gen. Grenfell; 1,500 slain, including Wad-el-n'Jumi, the leader, and 50 emirs. Crete: Insurrection breaks out; fighting between insurgents and Turkish soldiers.

5. William T. Harris appointed Commissioner of Education. Strike of coke-workers in Connellsville, Pa. England: The Emperor of Germany reviews the British fleet at Spithead.

7. England: Mrs. Maybrick sentenced to death for the murder of her husband. (See Aug. 22.) The German Emperor reviews British troops at Aldershot.

8. France: Gen. Boulanger's trial begins before the High Court of the Senate in Paris; the accused not present. Italy: Death of the statesman Benedetto Cairoli.

11. Mayor Grant, of New York, appoints committees to organize for the World's Fair of 1892. Sandwich Islands: Unsuccessful insurrection in Hawaii.

12. Germany: Francis Joseph, Emperor of Austria, visits Berlin.

13. A large meeting in Baltimore favors a World's Fair in Washington. France: The High Court finds Gen. Boulanger guilty of conspiracy and attempted treason. Germany: The Emperor of Austria reviews German troops at Berlin.

14. United States Deputy Marshal Nagle, detailed to guard Associate-Justice Field, kills one David S. Terry, who makes an attack upon the Justice at Lathrop, Cal., much excitement follows; Justice Field and Deputy Marshal Nagle are arrested. (See Sept. 16.). France: The High Court sentences Gen. Boulanger, Henri Rochefort, and Count Dillon, to be deported to some fortified place. All of them are on British soil. Three French ironclads sail for Crete. Germany: The Emperors witness a sham fight at Spandau.

15. Germany: The Austrian Emperor leaves Berlin.

16. The new State of North Dakota decides upon Bismarck as the capital.

17. Sullivan, the prize-fighter, sentenced to twelve months' imprisonment for fighting in Mississippi. A race and political fight occurs in Richmond, Texas, several persons killed.

21. The President is publicly received and entertained at Cincinnati. News of the seizure of two British sealing schooners by the United States Revenue-cutter Rush in Bering Sea.

22. The President delivers an address at the dedication of a Soldiers' Monument in Indianapolis. England: Mrs. Maybrick's death-sentence commuted to penal servitude for life.

23. The President presides and speaks at the annual reunion of the Seventeenth Indiana Regiment. Hayti: Fighting between the forces of Légitime and Hyppolite. England: Strike of dockmen in London, business paralyzed.

24. Hayti: Légitime abandons his claims to the presidency, and leaves Port-au-Prince, to be occupied by Hyppolite. This ends the war in Hayti.

26. The strike of the London dockmen assumes threatening proportions.

27. Annual meeting of the Grand Army of the Republic in Milwaukee, Wis.

28. Meeting of the American Bar Association at Chicago. Charles R. Flint and Henry G. Davis appointed delegates to the Three Americas Congress. The City of Paris crosses the ocean in five days, nineteen hours, and eighteen minutes, beating all previous records. Canada: Meeting at Toronto of the American Association for the Advancement of Science.

30. The Cronin murder trial begins in Chicago. England: Parliament is prorogued.

31. W. G. Veazey appointed member of the Inter-

state Commerce Commission. Willis Vandevanter to be Chief Justice of Wyoming.

September 1. A race war considered imminent in Leflore County, Miss.; a company of militia ordered out. England: A mass meeting of strikers in London decides to continue the strike. Prof. George L. Goodale, of Harvard, chosen President of the American Association for the Advancement of Science.

4. Egypt: Dervishes defeat a force of Egyptians near Suakin.

5. Celebration of the founding of "The Old Log College" at Hartsville, Pa. President Harrison and Gov. Beaver take part in the proceedings. The church at Stratford, Conn., celebrates its two hundred and fiftieth anniversary.

6. Thomas H. Anderson appointed Minister to Bolivia. Andrew D. White elected President of the American Social Science Association.

7. Launch of the steel cruiser Philadelphia at Wilmington, Del.

9. Opening of Centennial celebration at Baltimore.

10. Henry C. Warmoth appointed collector of customs at New Orleans.

11. Reunion of Pennsylvania troops at Gettysburg, many monuments dedicated.

12. "Corporal" Tanner, Commissioner of Pensions, resigns.

13. Close of the Baltimore Centennial, with a mock bombardment of Fort McHenry. Death of Congressman S. S. Cox, of New York.

14. A bronze statue of Gen. Grant unveiled at Fort Leavenworth.

15. England: Another mass-meeting of strikers in London.

16. Deputy Marshal Nagle released on his own recognizance by Judge Sawyer, of San Francisco. England: The London strike at an end, the demands of the strikers being in the main conceded.

19. At a meeting in Chattanooga, Tenn., veterans of the Northern and Southern armies decide to convert the battle-field into a National Park. The United States gunboat Galena ordered to Navassa Island to quell a riot. Spain: A fleet has been ordered to Tangier, to demand the release of Spaniards captured by the Moors.

20. A tract of land adjacent to the upper end of Central Park, New York, selected as a site for the World's Fair of 1892.

21. France: A monument to the French Republic unveiled by President Carnot.

23. France: Returns of the election give the Republicans 158 members and the Opposition 89. England: Death of Wilkie Collins, the novelist.

24. Russia: A chest of dynamite explodes in the station at St. Petersburg, just as the Czar is leaving for Copenhagen. Several by-standers killed. The Czar escapes.

25. Centennial celebration at Cumberland, Md. Annual Convention of American Bankers at Kansas City. Reunion of the Army of the Tennessee, at Cincinnati. Spain: A bomb explodes behind the Queen's palace of San Sebastian, no one hurt.

26. France: The votes cast for Gen. Boulanger in Montmartre at the recent election are declared null and void by the Paris Municipal Commission. Holland: Strike among dock-laborers at Rotterdam.

30. Delegates to the Pan-American Congress hold a preliminary meeting in Washington.

October 1. Commodore Walker, United States Navy, transferred to the command of the European Squadron, with the rank of rear-admiral. Frederick Douglass, the new Minister to Hayti, sails for Port-au-Prince on the gunboat Kearsarge. Elections to establish governments held in each of the four new States. Spain: An infernal machine discovered near the Royal Palace in Genoa.

2. The Pan-American Congress organized in Washington. George William Curtis re-elected President of the Civil Service Reform League. The Chinese Minister presents his credentials. Monuments to Maine soldiers dedicated at Gettysburg. A conven-

tion favoring a World's Fair in the West, in 1892, meets at St. Joseph, Mo. Pan-American delegates visit West Point. The thirty-fifth Triennial Convention of the Protestant Episcopal Church meets in New York.

4. Pan-American delegates visit Boston. The New York base-ball team wins the championship.

6. Supplementary elections in France. Final result: Republican, 362; Opposition, 205.

7. Ex-Mayor Seth Low, of Brooklyn, chosen President of Columbia College, *vice* President Barnard, deceased. England: Boulanger leaves London for the Island of Jersey. France: The King of Siam visits Paris.

8. Pan-American delegates continue their trips through the manufacturing districts of New England.

9. Monuments to New York and Vermont soldiers dedicated at Gettysburg. Triennial Council of the Congregational Church opens at Worcester, Mass. Grand Encampment of Knights Templars at Washington.

11. Germany: The Czar of Russia visits the German Emperor at Berlin. England: A miners' conference at Birmingham decides in favor of an eight-hour working day.

14. Annual meeting of the American Board of Commissioners for Foreign Missions.

15. Delegates to the International Maritime Congress assemble in Washington. Germany: The Czar starts on his return to Russia.

16. Meeting of the International Maritime Congress.

17. General Hippolyte unanimously chosen President of Hayti.

22. Work formally begun on the Nicaragua Canal.

23. Meeting of the American Antiquarian Society in Worcester.

24. Opening of the Cronin trial in Chicago.

25. The gunboat Galena, with the Navassa Island rioters on board as prisoners, reaches Baltimore. Portugal: Death of King Luis I.

27. Greece: Marriage of the Crown Prince to Princess Sophie of Prussia, in the presence of the Emperor of Germany, the Prince of Wales, and other European dignitaries.

29. Forty-third annual meeting of the American Missionary Society at Chicago.

30. A monument to Gen. Caesar Rodney, the Revolutionary patriot, unveiled at Dover, Del.

31. Pan-American delegates visit the tomb of Abraham Lincoln. A fight occurs between Methodists and Catholics at Axtell, Kansas.

November 2. North and South Dakota admitted to the Union by proclamation of the President.

4. An International Maritime Exhibition formally opened at Boston.

5. Governors of States elected as follows: J. Q. A. Brackett (Rep.), Massachusetts; Horace Boies (Dem.), Iowa; James E. Campbell (Dem.), Ohio; P. W. McKinney (Dem.), Virginia; Leon Abbett (Dem.), New Jersey; J. M. Stone (Dem.), Mississippi. (See articles on those States.)

6. A conference of the leading postmasters of the country is held in Washington. France: Close of the International Exposition in Paris.

7. Montana admitted to the Union by proclamation of the President.

8. Johns Hopkins University receives a bequest of \$100,000 from Caroline Donovan. Montana proclaimed a State.

11. Washington Territory is admitted to the Union by proclamation of the President. Congress of Catholic laymen opens at Baltimore. France: The Chamber of Deputies meets.

13. Convention of the Knights of Labor in Atlanta. Opening of the Catholic University at Washington. The Pan-American delegates return to Washington after a journey of 6,000 miles, traversing the country from Portland to Omaha.

15. A revolution takes place in Brazil. The Emperor is peacefully deposed, and leaves the country. (See article on Brazil.)

20. Celebration at Fayetteville, N. C., of the ratification of the Constitution of the United States. The South Atlantic Squadron ordered to Brazil.

27. In the Supreme Court of Illinois the Chicago Gas Trust is declared illegal.

28. Thanksgiving Day. Princeton College defeats Yale at foot-ball, and wins the championship.

29. England: Death of Martin Farquhar Tupper. France recognizes the Brazilian Republic.

December 2. The Fifty-first Congress begins its sessions. Senate: New members take oath of office.

3. The President's message read in both Houses of Congress. The ex-Emperor of Brazil and his family reach Portugal. The President of Nicaragua signs the treaty of union between the five Central American republics.

4. David J. Brewer, of Kansas, appointed Associate Justice of the Supreme Court. A general Christian Conference, under the auspices of the Evangelical Alliance, is held in Boston. Africa: Stanley, the explorer, with Emin Pasha, of whom he went in search, reaches the east coast at Bagamoyo.

5. Emin Pasha dangerously injured by an accident.

6. Death of Jefferson Davis.

7. The United States Squadron of Evolution sails from Boston for Lisbon.

9. General epidemic of influenza in Europe.

11. Congress: Senate, Mr. Hale's naval bills reported. A service pension bill introduced by Mr. Ingalls. Both Houses meet to commemorate the inauguration of Washington. Obsequies of Jefferson Davis in New Orleans.

12. Congress: Senate, bills introduced favoring negro emigration. England: Death of Robert Brown-ing.

13. The Cronin trial ends, and the jury retires. Russia: Alleged plot discovered against the Czar's life.

14. Africa: A Portuguese force, under Major Serpa Pinto, has had an encounter with natives, and killed many of them.

16. The jury in the Cronin case find Coughlin, Burke, and O'Sullivan guilty. They are sentenced to imprisonment for life. Kunze is sentenced for three years. Beggs is not guilty. Capt. Shepard is appointed Chief of the Revenue Marine Service. The Pan-American delegates visit New York.

17. Congress: Senate, the President submits a new extradition treaty with England. The Blair Education bill is favorably reported from committee.

18. D. J. Brewer confirmed by the Senate as a Justice of the Supreme Court (vote 57 to 11).

19. Congress: Senate, Secretary Tracy called upon to investigate the alleged naval lobby.

20. Congress: Senate, debate on the recognition of the Brazilian Republic.

21. Both Houses of Congress adjourn to Jan. 6, 1890. Brazil: An executive decree published fixing Sept. 15 as the date of the first general election, and banishing Dom Pedro and his family. England: A squadron has been ordered to Delagoa Bay.

22. Several persons injured in a race riot at Potts Camp, Miss.

28. Charles I proclaimed King of Portugal. Death of the ex-Empress of Brazil.

F

FARMERS' CONGRESS. The Farmers' Congress of the United States held its ninth annual session in the House of Representatives, at Montgomery, Ala., Nov. 13-15, 1889. It was the largest gathering of representative agriculturists of the United States ever assembled. (For the constitution of the organization see "Annual Cyclopædia" for 1886, page 330.) At ten o'clock the congress was called to order by the president, Col. R. F. Kolb, of Alabama, and prayer was offered by the Rev. M. B. Whorton, D. D., of Montgomery. Mayor Graham, of Montgomery, made an address of welcome. Speeches were made by Hon. George W. Spofford, of Illinois, by Hon. Benjamin F. Clayton, of Iowa, and by President Kolb. Papers were read as follow: "Handling the Cotton Crop," by Major R. J. Sledge, of Texas; "The Relation of Agriculture to Manufactures and Commerce," by Hon. T. B. Norton, of Wisconsin; "Wool and Mutton Industry of the United States," by Hon. William Lawrence, of Ohio; "A Word of Encouragement to Farmers' Boys," by John A. Scott, of Illinois; "The Railway Problem," by Hon. L. S. Coffin, of Iowa; "Agriculture in the Northwest," by William Bushnell, President of the Minnesota Agricultural Society.

The following resolutions were adopted:

Resolved, That we are opposed to all combinations of capital, in trusts or otherwise, to arbitrarily control the markets of the country to the detriment of our productive industries; and we demand of the Congress of the United States such legislation as will secure to farmers and stock raisers of the country the best possible reward for their labor.

Resolved, That while Congress maintains the policy of a protective tariff, we demand that all farm products shall be as fully protected as the most favored of the manufacturing industries.

Resolved, That while, as now, a protective tariff is maintained which substantially prohibits the importation of foreign carpets and many other articles of manufactured goods, we demand that the duty on mutton, sheep, and wool of all kinds shall be so increased as to equally prohibit the importation of mutton, sheep, and wool of every kind which can, under protection, be sufficiently produced at fairly remunerative prices in the United States to supply all American wants, including the better class of carpet wools, especially as carpets are luxuries, entitled to less favor than farm and ranch products.

Resolved, That the tariff on wool imported to make carpets should at least be as high as that imported to make coats. The same policy which will secure cheap cloths will secure cheap carpets.

Resolved, That, if protection to this extent be denied, we call upon the farmers of the United States to assert their power, at the ballot-box and otherwise, to right the wrong and injustice of discrimination against them. If they fail in this, the wool and mutton producing industries will be so seriously crippled that they will be in a large measure destroyed, and farmers will no longer have any interest in protection for the manufacture of woolen goods, but will insist that it shall have no larger measure of protection than is accorded to the wool industry, including every kind of wool.

Resolved, That the farmers of the United States are called upon to support the nomination of no man for President, Senator, or Representative in Congress who

will not, to his utmost ability, aid in carrying out the objects of the foregoing resolutions.

Whereas, There is great and growing demand for the products of our farms and factories in South America and Australia; and *whereas*, this trade could be greatly increased and rendered more profitable to the United States by more direct communication; and *whereas*, the generous assistance and liberal offers of these governments in aid of direct ship lines have never been properly reciprocated by our Government in the past; and *whereas*, our rivals are appropriating this trade with a strong hand, thereby threatening great danger to our interest, especially on the Pacific coast, therefore

Resolved, that it is the desire of this Congress that our Government should take immediate and active measures to establish more direct and profitable communication between the United States and these countries, and should extend to such lines all the aid they need to place them on a permanent and successful basis.

Resolved, By the Farmers' Congress, that it favors a comprehensive scheme for the improvement of the Mississippi and the Missouri rivers, and a ship canal across the State of Illinois, connecting the Mississippi river and Lake Michigan; and it is recommended that the United States Congress make liberal appropriations therefor.

Resolved, That in view of the greatly increasing number of accidents to trainmen on our railroads from coupling and uncoupling cars, and from using the old hand brakes on freight cars, we demand a thorough investigation by proper governmental authority, to the end to ascertain if there is not a safer and more practicable method by which these faithful servants could do their work without this terrible sacrifice of life and limb, as casualties to the number of over six thousand happen yearly from these sources; and also what legislation is needed to require the use of the best-known, practicable, safe appliances by railroad companies.

Resolved, That the National Farmers' Congress favors the selection of Chicago as the place of holding the World's Fair in 1892, and that a copy of this resolution be sent to the members of both Houses of Congress.

Resolved, That the examination of the arid regions of the Northwest, now going on under the authority of Congress with a view to the selection of sites for reservoirs for holding and distribution of water for irrigating purposes, is of the deepest importance to the farmers of such section, and the National Farmers' Congress is in favor of liberal appropriations in this effort to extend the agricultural area of the country.

Whereas, an effort is being made for the organization of a national board of agriculture, sixteen States having already signified their approval; and *whereas*, an act of Congress will be necessary to constitute such board; therefore be it

Resolved, That we favor the organization of such a board, and recommend that two delegates from each of the States represented in the National Congress be selected to co-operate with such national board of agriculture.

Resolved, That we favor commercial treaties which will discriminate in favor of those nations which accept silver as legal-tender money as well as gold, and against those which have demonetized silver.

Resolved, That the secretary of the Farmers' Congress be, and he is hereby instructed to prepare copies of all resolutions passed by this body, wherever the Congress of the United States is requested to take action, and forward the same to the President of the Senate and the Speaker of the House, to present to their respective bodies.

FINANCIAL REVIEW OF 1889. This year was remarkable for disastrous floods and fires and for unusual meteorological conditions. First in importance was the inundation in the Conemaugh valley, May 30, involving the destruction of Johnstown, Pa., the loss of 3,500 lives, and incalculable damages to railroads and other property. Then followed the burning of half the town of Livingston, Ala.; the fire in Seattle, Washington Territory; important conflagrations in Lynn and in Boston, Mass.; disastrous floods in Japan Aug. 19 and Sept. 11; destructive tides at Coney Island and at Long Branch Sept. 14; and a blizzard in New Mexico in November. The rainfall of the year was almost unparalleled, especially in the Eastern States, and the temperature in the summer below and in the winter above the normal. One feature during the year was the investment of large amounts of foreign capital in American industrial enterprises, particularly breweries. Business was prosperous in almost every branch of trade, more particularly in that of iron and steel, but wool and woolen manufactures were depressed.

The most important financial events abroad during the year were the conversion of the £32,000,000 out of about £42,500,000 English 3-per-cent. consols into 2½ per cents., and the panic in Paris early in March, which was precipitated by the suicide of M. Rochereau, managing director of the Comptoir d'Escompte, an institution with a capital of 80,000,000 francs, and next in importance to the Bank of France. The shock resulting from this panic was felt in all the capitals of Europe, in China, where the bank had branches, and in New York; and more or less influenced the European money markets for a long time. The indirect cause of this panic was the speculation in copper, carried on by a combination of capitalists headed by the Société des Metaux. This combination began its operations in the autumn of 1887, buying up all the copper that could be obtained, and making contracts with copper-producing companies, agreeing to take for three years their entire production. The capital of the Société was increased from 25,000,000 francs to an amount which it was thought would be sufficient for the purposes of the combination, but when the mines demanded a guarantee for the engagements entered into by M. Secretan, the director, he applied to M. Rochereau, who was a member of the board, for advances. The first contribution by the comptoir, through M. Rochereau, was made in December, 1887, and this was followed by others in January and in March, 1888; then a syndicate was formed, who agreed to contribute 70,000,000 francs. Three members withdrew before February, leaving the capital of the syndicate 55,250,000 francs. In March, five foreign firms joined the syndicate, and the total of the advances to be made was raised to 62,625,000 francs. The Société also increased its capital and the managing director of the comptoir was authorized to guarantee two new contracts with American mines. The embarrassments of the institution had then already commenced for, besides the copper purchases, previous speculations in tin by the Société had not been liquidated, and the comptoir was exposed to a loss of 22,000,000 francs under that head. Notwithstanding this,

however, the bank guaranteed 78,000,000 francs under a contract with the Rio Tinto. At the end of May the advances by the comptoir were 138,850,000 francs, of which 28,100,000 were unsecured. New contracts were from time to time reluctantly guaranteed by the comptoir, and at the end of December the total advances were 172,000,000 francs. In January, this year, the comptoir borrowed 21,000,000 francs to conduct the business of the Société, and on Feb. 5 it parted with warrants representing 38,000,000 francs, to enable the Société to raise a loan of 25,000,000 francs. Then M. Secretan organized the Société Auxiliare des Metaux, which was to take 75,000 tons of copper at 1,750 francs per ton, and pay over the value to the comptoir, but this contract was only partially carried out. At the end of January the syndicate is said to have held 130,000 tons of copper. The visible supply of the metal had increased during the operations of the combination, due to decreased consumption and augmented output, and early in February the syndicate ceased to buy copper for future delivery, and at the beginning of March they stopped buying for immediate delivery. It then became evident that the combination had reached the limit of its resources, and that without assistance the syndicate would fail. This condition of affairs was, of course, known to M. Rochereau, and it is therefore not surprising that he was driven to suicide, this event occurring March 5, and precipitating a run upon the comptoir. When the fact became public that large advances had been made by the bank, the excitement was intensified, there was a rapid fall in copper stocks and in shares of the comptoir, and a wild panic ensued. With a view of allaying the excitement the Bank of France advanced 100,000,000 francs to the comptoir, and subsequently agreed with the Rothschilds and other bankers to advance 40,000,000 more, on condition of the transfer of the entire paid-up capital of the comptoir. But it was subsequently ascertained that the capital and reserve were lost, and the assets of the bank were taken as security for advances by the Bank of France and bankers. The failure of the copper syndicate was followed by efforts to induce producers to relinquish their claims, and a compromise was made, but the price of copper gradually reached its normal level. The comptoir was reorganized during the summer, and the old directors were ordered by the Paris Tribunal of Commerce to deposit 19,000,000 francs as a guarantee for the payment of any damages to which they might subsequently be condemned. The most culpable were those six directors who were also in the direction of the Société des Metaux. At the end of August 53,000,000 of the 140,000,000 francs, advanced by the Bank of France, had been paid off. Toward the close of November it was announced that the assets given in pledge to the Bank of France and the Bank of Paris, representing a nominal value of 203,000,000 francs, would realize enough to pay the secured advances, without any call for the guarantee, and leave a balance for liquidation. The revival of the speculation in copper had, at that time, carried the price up to 1,200 francs from 950 francs per ton in April, and this would enable the Bank of France to sell advantageously the copper warrants it held.

The old board of the comptoir then made an offer to increase the indemnity, fixed provisionally by the Tribunal of Commerce, from 19,000,000 francs to 24,000,000, and in addition M. Edouard Heusch, formerly chairman of the board offered to abandon to the liquidators all his fortune, amounting to 1,500,000 francs. By the reorganization of the comptoir the guarantees to the mining companies were canceled, and the liquidator was placed in a position to make terms of settlement, but it is probable that the affairs of the comptoir will not be finally liquidated in less than two or three years. It was feared in London during the panic in Paris that gold would be drawn from that center, but none was taken at that time. A Russian conversion loan of 700,000,000 francs was brought out by the Rothschilds during March, and it was principally for this reason that this banking house assisted in restoring confidence. After prices of securities had partially reacted, holders commenced to sell, and London bought so freely as to turn exchange in favor of Paris. The first gold taken was toward the end of May, and on June 8 the Bank of England sought to check the movement by advancing the price of the French coins held by that institution. The Paris Exposition was opened in May and while this was open tourists from all parts of the world visited the French capital, thus aiding in attracting thither large amounts of gold. The agents of the bank, with a view further to augment its holdings, ordered gold out from New York, paying a premium therefor, and between the early part of May and the middle of September it had accumulated about 300,000,000 francs of this metal, principally from the United States.

In the autumn there was a sustained advance in the price of silver in London, caused by purchases by the British mint for the coinage of pieces to take the place of half-sovereigns issued prior to the present reign. The rise was further stimulated by reports of a scarcity of the metal in the European markets, and also by the expectation that the Secretary of the United States Treasury would increase his purchases of silver under the act of 1878, to the maximum of \$4,000,000 per month. The Secretary purchased liberally during October and November, taking the product of all the American mines, and gradually, under the combined influence of American and English buying, the price moved up by the end of November to 44½ pence per ounce in London, equal to 97½ cents for fine bars in New York. Upon the announcement of the Treasury policy, to issue certificates against bull-

minimum rate of discount at the bank was 2½ per cent., having fallen from 4 Jan. 9. Under the influence of withdrawals for Paris and the Argentine Republic, the stock of bullion was reduced to £19,519,657 Oct. 9, and then the bank minimum was 5 per cent. At the end of December the amount of bullion was about £17,800,000, and the bank rate was 6 per cent. At the beginning of the year the gold in the Bank of France amounted to £40,204,870, and the rate of discount was 4½ per cent. There was a reduction in the stock of gold to £39,936,914 Jan. 17, when the bank rate was reduced to 4 per cent., and by the end of January the rate was 3 per cent. Gradually the amount of gold increased, without any material diminution being caused by the March panic, until it reached £53,313,188 Sept. 19. On Jan. 7 the Bank of Germany held an estimated amount of £28,677,334 gold, which gradually increased to £32,100,664 by May 23. Thereafter there was a gradual decrease to £25,164,000 by Oct. 7, and then the bank rate was 5 per cent. At the end of the year the amount of gold bullion held by the Bank of England was £17,782,799; by the Bank of France, £50,465,026; and by the Bank of Germany (estimated), £25,870,000.

The following tabular survey of the economical conditions and results of 1889, contrasted with those of the preceding year, is from the "Commercial and Financial Chronicle":

ECONOMICAL CONDITIONS AND RESULTS.	1888.	1889.
Coin and currency in the United States, Dec. 31	\$1,687,890,622	\$1,671,160,220
Bank clearings in the United States	\$49,497,500,202	\$56,013,674,898
Business failures	\$123,529,973	\$148,734,337
Imports of merchandise (year)	\$725,411,371	\$770,302,657
Exports of merchandise (year)	\$691,761,050	\$827,250,373
Gross earnings 136 roads (12 months)	\$419,799,570	\$455,554,351
Railroad construction, miles..	7,023	(est.) 5,000
Wheat raised, bushels	415,868,000	490,560,000
Corn raised, bushels	1,987,790,000	2,112,892,000
Cotton raised, bales	6,985,082	7,450,000
Pig-iron produced (tons of 2,000 pounds)	7,268,507	8,517,063
Steel rails, Bessemer (tons of 2,000 pounds)	1,529,832	1,644,234
Anthracite coal (tons of 2,240 pounds)	38,145,713	34,641,017
Petroleum (runs) production, barrels	16,259,977	(est.) 21,250,000
Immigration into the United States, year	518,526	426,788

The prices of leading staples on or about the 1st of January, 1890, compared with prices at the same date in 1889 and 1888, were as follows:

PRICES OF LEADING STAPLES.	1888.	1889.	1890.
Cotton, middling uplands, per pound	10 ¹¹ / ₁₆	9 ¹ / ₂	10 ¹ / ₄
Wool, American XX, per pound	37	38	37
Iron, American pig No. 1, per ton	\$21 00 to \$21 50	\$18 00 to \$18 50	\$19 50 to \$20 50
Steel rails at mills, per ton	\$32 00 to \$33 00	\$28 00	\$35 00
Wheat, No. 2 red winter, per bushel	92	\$1 01 ¹ / ₂	85 ¹ / ₂
Corn, Western mixed No. 2, per bushel	63	46	39 ¹ / ₂
Pork, mess, per barrel	\$15 50 to \$16 00	\$14 00 to \$14 25	\$10 25

ion, the price fell off in London to 43½ pence, subsequently reacting to 44½, and at the close of the year it stood at 43¹/₁₆ pence an ounce.

The bullion in the Bank of England was at the highest point, £23,936,573, June 5, and the

The Money Market.—The range for money on call, represented by bankers' balances, was from 45 to 1 per cent. during the year. The highest rate was recorded Dec. 30, and it was largely the result of manipulation, bear traders

in stocks taking advantage of a calling in of loans by the banks for the January payments, and forcing the rate to high figures, but very little money was loaned above 25 per cent. At the opening of January, loans were made at 8 per cent. on call, but the rate fell to $1\frac{1}{2}$ @ 2 by the close and the average was $2\frac{1}{2}$ @ 2 after the middle of the month. Time loans on first-class collateral were $4\frac{1}{2}$ per cent. for 30 to 60 days at the beginning of January, and $2\frac{1}{2}$ after the middle of the month, when money was in abundant supply. The demand for short double-name commercial paper was so urgent that the rate fell from $5\frac{1}{2}$ per cent. during the first week to 4. Call money was in good supply during February, and lenders on time offered special inducements to those who could offer satisfactory collateral. The rate for bankers' balances early in the month was 4 per cent. Then came a fall to an average of 2, with some loans at 1, and the range was between 1 and 2 for the remainder of the month. Time loans were 3 per cent. for sixty and $3\frac{1}{2}$ @ 4 for ninety days, and $4\frac{1}{2}$ @ 5 for four, five, and six months until the close, when they were offered at 3 for sixty to ninety days, $3\frac{1}{2}$ for four months, and 4 for five and six months. Commercial paper was in good request, and rates were 4 per cent. for short double names, $4\frac{1}{2}$ @ 5 for four months acceptances, and 5 @ 6 for good four to six months single names. Early in March money on call was easy at an average of about $2\frac{1}{2}$ per cent., but it grew more active toward the close, when it moved up to 6 with $3\frac{1}{2}$ as the average. Time loans on first-class stock collateral were 3 per cent. early in the month and 4 by the close for thirty days; 4 for four months, and $4\frac{1}{2}$ for five and six months at the opening, gradually nearing up to $4\frac{1}{2}$ @ 5 for from four to seven months at the end. Prime double-name short commercial paper was $4\frac{1}{2}$ @ $5\frac{1}{2}$ at the beginning, and $4\frac{1}{2}$ @ 5 at the close of the month. The rates for four months acceptances were $4\frac{1}{2}$ @ $5\frac{1}{2}$, and for four to six months good single names $5\frac{1}{2}$ @ $6\frac{1}{2}$ per cent. The shipment of \$2,250,000 gold to Paris on special order had some effect upon the money market during the latter part of the month. Loanable funds on call were active early in April, and 11 per cent. was recorded on the 1st, but, under the influence of a better supply resulting from bond purchases by the Secretary of the Treasury, the rate fell to $1\frac{1}{2}$, reacted to 6, and declined to 2 @ 3 by the end of the month. The bonds bought were about \$11,500,000, at 108 for $4\frac{1}{2}$ s and 129 for 4s. Time loans were in good demand, especially early in the month, and the inquiry was chiefly for short dates. The thirty-day rate was $3\frac{1}{2}$; sixty to ninety days, $3\frac{1}{2}$ @ 4; and from five to eight months, 4 @ 5. After the middle of the month the demand for short dates grew less urgent, and toward the close, influenced by more liberal offerings, chiefly from foreign bankers, thirty to ninety day contracts were $2\frac{1}{2}$ @ 3, and from four to nine months $2\frac{1}{2}$ @ $3\frac{1}{2}$ per cent. Commercial paper was steady at $4\frac{1}{2}$ @ 5 per cent. for short double names until the 15th, and after that 4 @ $4\frac{1}{2}$ to the close. Four months acceptances were then 4 @ $4\frac{1}{2}$, and good single names $4\frac{1}{2}$ @ $5\frac{1}{2}$ per cent. The supply was only fair while the inquiry was good from every quarter. In May call loans ranged between 4 and $1\frac{1}{2}$ per cent.,

averaging $2\frac{1}{2}$ early in the month, and 2 toward the close. Time loans were $2\frac{1}{2}$ per cent. for sixty to ninety days; 3 @ $3\frac{1}{2}$ for four to six months, and $3\frac{1}{2}$ @ 4 to the end of the year. Commercial paper of short date fell from $3\frac{1}{2}$ @ $4\frac{1}{2}$ to 3 @ $3\frac{1}{2}$; four months acceptances from 4 @ $4\frac{1}{2}$ to $3\frac{1}{2}$ @ $4\frac{1}{2}$, and good four to six months single names from $4\frac{1}{2}$ @ $5\frac{1}{2}$ to 4 @ $5\frac{1}{2}$ per cent. Over \$9,000,000 gold was shipped to Europe during the month, and the bond purchases amounted to about \$6,000,000. In June money on call averaged $2\frac{1}{2}$ @ $2\frac{1}{2}$ per cent. until toward the close when, under the influence of a drain of nearly \$20,250,000 gold to Europe, there was an advance to an average of 3, with 6 as the highest rate. Time loans during the month were $2\frac{1}{2}$ @ 3 per cent. for sixty to ninety days; 3 for four months, and $3\frac{1}{2}$ @ 4 for five months to the end of the year. Commercial paper was in good supply, and rates were 3 @ $4\frac{1}{2}$ per cent. for sixty to ninety day indorsed bills receivable; $3\frac{1}{2}$ @ 5 for four months acceptances, and $4\frac{1}{2}$ @ $5\frac{1}{2}$ for good four to six months single names. Early in July money on call was active at 6 per cent., but before the close it fell to 4, influenced by the check to gold exports, and the shipments for the month were only \$4,600,000. Time loans were in good request at 4 per cent. for ninety days; $4\frac{1}{2}$ for four months and $4\frac{1}{2}$ @ 5 for five to six months. City lenders absolutely refused to accept trust stocks as collateral, and dealers in these properties were obliged to make special arrangements with out-of-town houses who carried them at 6 per cent. for six months. Commercial paper was about $4\frac{1}{2}$ @ 5 per cent. for short double names; $4\frac{1}{2}$ @ $5\frac{1}{2}$ for four months acceptances, and 5 @ $6\frac{1}{2}$ for good four to six months single names. Money on call loaned in August at 2 and at 6 per cent. The lower rate was recorded early in the month. By the second week the drain of currency to the interior for crop purposes became so great that the bank reserves were reduced and confidence was to some extent unsettled by mercantile failures, so that money advanced to the higher figure named. The Secretary of the Treasury refused to pay more than 128 for the 4-per-cent. bonds, and holders of about \$10,000,000 of these securities therefore decided to sell. Those purchases were made during the last week; they promptly affected the market, and the call-loan rate fell to 2 per cent. Time money on stock collateral was 4 per cent. for thirty to sixty days; $4\frac{1}{2}$ for four months and 5 for five to six months early in the month, but the rate rose to 6 for all dates before the end, and then it dropped to $5\frac{1}{2}$. Commercial paper was almost unsalable. Short double name rose from $4\frac{1}{2}$ @ 5 to 6 per cent.; four months acceptances from 5 @ $5\frac{1}{2}$ to 6 @ $6\frac{1}{2}$; and good single names having from four to six months to run from $5\frac{1}{2}$ @ $6\frac{1}{2}$ to $6\frac{1}{2}$ @ $7\frac{1}{2}$. Toward the close of the month, however, rates were a little easier. Early in September money on call gradually advanced from an average of $3\frac{1}{2}$ per cent. during the first week to $5\frac{1}{2}$ with 10 as the highest rate until the last day when 30 was recorded. Time loans advanced from 4 per cent. for thirty to sixty day contracts to 6 for three to six months, and commercial paper was of slow sale. Rates at the close were $5\frac{1}{2}$ per cent. for short indorsed notes, 6 @ $6\frac{1}{2}$ for four months acceptances, and $6\frac{1}{2}$ @ $7\frac{1}{2}$ for good four to six

months single names. The shipment of \$1,500,000 gold to London on special order had a disturbing effect upon the money market during the first few days in October, for it was then uncertain how much more gold would be ordered out, the requirements of the London bankers being urgent. But a reduction in exchange and news that the immediate wants of these bankers had been supplied by purchases of gold in Paris, allayed apprehensions. The bank return for the first week in the month showed a deficiency of \$1,668,050 for the first time since May 31, 1884, and the market was more or less active throughout the month, loans on call being made at 20 per cent. and at 3, with very little at the extremes, and the average being about 7 to 8. Toward the close the tone grew a little easier, in consequence of an increase in bank reserves, but this was almost wholly due to a reduction in loans and not to any gain in cash. Time loans were 6 per cent. for sixty days to six months early in the month and at 6 @ 8 toward the close. Lenders who obtained more than 6 per cent. did so by discounting the loan or by charging a commission so that the law of the State, forbidding loans on time for more than 6 per cent., was evaded. None of the city banks were purchasers of commercial paper, and the buying was confined to a few out-of-town houses. Rates were 5½ @ 6 per cent. for sixty to ninety day indorsed bills receivable; 6 @ 6½ for four months acceptances; and 7 @ 8 for good four to six months' single names. Money on call was easier early in November at an average of 5½ @ 6 per cent., but after the middle of the month it grew active and 20 per cent. was recorded during the third week, the advance being caused by a rumor that the Secretary of the Treasury contemplated calling Government funds from some of the depository banks. Lenders took advantage of the uneasy feeling produced by this report, and they forced the rate upward by calling loans and then re-lending the money at about the best figures ruling at the Stock Exchange. On the semi-official denial of the report the rate dropped to 1 per cent. but it subsequently reacted to 12, and it moved between 4 and 8 for the remainder of the month. Lenders refused to make time-loan contracts for sixty days, and borrowers were accommodated only by taking money for five, six, or seven months at 6 @ 7 per cent. The quotations for commercial paper were only nominal. On Dec. 2 money on call loaned at 15 per cent., on the announcement by the Secretary of the Treasury that 10 per cent. of the Government deposits in the national banks would be called by Jan. 15. But when it was seen that this call would amount to only about \$4,700,000 there was a better feeling in the market, and by Wednesday the rate fell to 2 per cent. Time loans on prime stock collateral were 6 per cent. for ninety days to seven months, and commercial paper was nominally 6 for short indorsed and 6½ and 7½ for single names, growing easier by the end of the year with a restricted inquiry. After the third week money on call became active, partly because of manipulation, but mainly in consequence of the low bank reserves and expectations of large withdrawals from the market for the January settlements, although some of the prominent commission houses had made provision with

short time loans to meet this period of stringency. On the 30th Mr. Windom directed the payment without rebate of the interest due Jan. 1, and this had an immediate moral effect after the rate had been advanced to 45 per cent. on call. On Dec. 31 the highest rate was 18 per cent.

The public debt statement shows that at the beginning of the year the amount of 4½ per cents. outstanding was \$181,152,300, and of 4 per cents. \$681,137,600. By the end of March the 4½s had been reduced to \$155,147,800, indicating a purchase of \$26,004,500, and the amount of the 4s was unchanged. At the close of June there were \$139,639,000 4½s and \$676,095,350 4s, showing purchases of \$5,506,800 of the former and \$5,043,650 of the latter. At the end of September the outstanding 4½s were \$128,821,800 and 4s \$655,385,050, indicating purchases, during the quarter, of \$10,817,200 4½s and \$20,710,300 of 4s. After Oct. 1 the Secretary refused to pay more than about 105¼ for the former and 127 for the latter. The purchases of both classes of bonds for the remaining quarter of the year amounted to \$33,000,000. The outstanding 4½s, Dec. 31, were \$121,367,700, and 4s \$629,795,700. This makes the total reduction of the debt by bond purchases during 1889 \$111,126,500. This amount, however, represents only the par value of the bonds.

The exports of gold to Great Britain during the year amounted to about \$14,000,000, and to France \$27,718,805, making a total of \$41,718,805. Imports of gold from Europe were about \$4,000,000, so that there was a net outgo of over \$37,000,000. Gold coinage for the year was \$21,413,931, reducing the net loss to the circulation to \$15,600,000.

The gold holdings of the associated banks were \$77,032,500 at the beginning of the year. These increased to \$90,536,000 by Feb. 16, and then the drain of gold for Europe carried the amount down to \$77,406,300 by April 5. Disbursements for bonds purchased by the Secretary of the Treasury aided in increasing the gold to \$87,771,800 by April 20, and after an irregular decrease there was a gradual reduction in the amount to \$67,321,700 Oct. 5. The legal-tender holdings of the banks were \$32,529,700 at the beginning of the year. There was a rise to \$37,545,800 Jan. 26; a fall to \$31,713,500 by April 5; a recovery to the maximum, \$46,184,300 June, 15; and a fall to the minimum, \$25,299,500, Dec. 7. Loans and discounts were at the lowest point, \$386,318,000, Jan. 12, and at the highest, \$423,405,000, July 6, when also the deposits were greatest, being \$445,797,500, the lowest being \$395,600,600, Dec. 14. The surplus reserve was \$73,333,100 Jan. 5 and \$20,014,800 Jan. 26. Then came a fall to \$1,409,575 April 5, a recovery to \$15,055,350 May 25, and a gradual fall thereafter. On Oct. 5 the banks showed a deficiency of \$1,668,050 in reserve for the first time since May 31, 1884. For the remainder of the year the bank reserves were low.

The condition of the New York Clearing-House banks, the rates for money, exchange, and silver, and prices for United States bonds on or about Jan. 1, 1890, compared with the preceding two years, are shown in the following summary:

BANK RETURNS, ETC.	1888.	1889.	1890.
NEW YORK CITY BANKS:			
Loans and discounts.....	\$356,540,000	\$388,793,700	\$394,761,800
Specie.....	71,189,300	76,521,300	75,560,700
Circulation.....	8,077,300	4,862,300	3,731,300
Net deposits.....	359,359,800	400,314,600	398,720,500
Legal tenders.....	27,259,800	29,535,700	26,141,100
Required reserve.....	89,839,950	100,078,650	99,680,125
Reserve held.....	98,399,100	106,360,000	101,701,800
Surplus reserve.....	\$8,559,150	\$6,281,350	\$2,021,675
MONEY, EXCHANGE, SILVER:			
Call loans.....	4 @ 6	4 @ 7	5 @ 45
Prime paper, 60 days.....	5½ @ 6½	5 @ 5½	5½ @ 6½
Silver in London, per ounce.....	44½ d.	42½	44½ d.
Prime sterling bills, 60 days.....	4 83½	4 85	4 80½
UNITED STATES BONDS:			
6s, currency, 1893.....	125	127½	124
4½s of 1891, coupon.....	107½	105½	104½
4s of 1907, coupon.....	12½	126½	126

The following is the Clearing-House statement of totals at the beginning of each quarter of 1889 and at the end of the year:

DATE.	Loans.	Specie.	Circulation.	Deposits.	Legal tenders.
January 5.....	\$392,336,900	\$77,032,500	\$4,850,500	\$408,916,400	\$32,529,700
March 30.....	421,023,200	80,521,700	4,292,900	437,936,700	34,412,600
June 29.....	417,455,300	72,312,400	3,947,400	440,006,700	45,281,500
September 28.....	409,311,700	69,574,000	3,948,100	417,824,200	35,692,500
December 28.....	394,761,800	75,560,700	3,731,300	398,720,500	26,141,100

Foreign Exchange.—The imports of merchandise for the year ending Dec. 31 were \$55,108,714 above those for 1888, and the exports of domestic and foreign merchandise were \$147,652,896 more. The excess of merchandise exports over imports for the year was \$56,947,716, against an excess of \$33,650,321 imports over exports for the year 1888. There was an excess of \$59,405,357 exports over imports of specie and bullion in 1889, against an excess of \$37,538,110 exports over imports of the same in 1888. The excess of exports over imports of merchandise, coin, and bullion this year was \$116,353,073, against \$3,887,789 for 1888.

Foreign exchange was firm during January and rates advanced half a cent per pound sterling to \$4.87 for sixty days and \$4.89½ for sight. Gold to the amount of \$1,000,000 was sent to Germany on the 24th, but, although rates were at the gold-exporting point, the metal was shipped on special order. Discounts were easy at the European centers, and there was a reduction in the official minimum by the Bank of England on the 9th to 4 per cent., and by the Bank of France to the same figure, and on the 24th both banks made a further reduction to 3½ per cent. On the 30th the Bank of England dropped to 3. Bankers' and commercial bills were scarce throughout the month. There was a fall in sight sterling on the 1st of February to \$4.89 in consequence of the offerings of some few bills against outgoing securities, and on the 6th sixty-day sterling was reduced to \$4.86½, but during the following week a demand for bills to remit for stocks sold for European account, and also to transfer foreign capital, caused a reaction to \$4.87 for long and \$4.89½ for short, and on the last day of the month \$500,000 gold was sent to Europe as an exchange operation for the first time since 1887. On March 7 there was a reduction in long sterling to \$4.86½ in consequence of liberal offerings of that class of bills, but short was firm, and

during the next week there was a good demand for sight sterling and cable transfers because of the disturbed condition of financial affairs at Paris, and on the 16th there came an export of \$1,250,000 gold to France, but not as an exchange operation, the metal being ordered out by bankers in the French capital. On the 23d another consignment of \$1,000,000 was shipped on order from London. On the 29th long sterling was advanced to \$4.87. Easier discounts in London brought about a further advance in sixty-day bills to \$4.87½ on April 5, and the market was firm until the 18th, when a reduction in the Bank of England minimum to 2½ per cent. from 3, at which it had stood since Jan. 31, caused an easier tone for short bills, but there was a recovery on the 26th, and on the following day \$1,024,390 gold was sent to Europe as an exchange operation. Commercial sterling was very scarce and shippers of staples obtained good prices for their drafts. On May 2 the long rate was advanced to \$4.88 and on the 4th \$2,801,343 gold was exported, and on the 10th \$500,000 more was sent, although the rate for actual business for short sterling did not fully justify the movement. On the 18th there was a further shipment of \$1,750,000 gold, on the 25th \$4,000,000 more, and on June 1, \$3,396,704 additional. The impossibility of procuring round amounts of sterling caused an export of \$4,000,000 gold during the week ending June 8, \$4,004,857 in the following week, \$5,749,423 during the week ending June 22, and \$2,609,664 in the last week of June, and nearly the whole of the \$29,836,381 gold sent for the previous eight weeks went to France. On the 27th the rates for sterling were reduced to \$4.87½ for long, and \$4.89 for short. From September until this time the fluctuations in sight sterling had not exceeded 1½ cent per pound, and the rate then stood within about one cent of the highest point in this period of nine months. Early in July exchange fell to \$4.87

for long, and \$4.89 for short, the market being affected by arbitrage dealings for London account, by dear money on time, and by selling of futures against deliveries of cotton. Gold exports to France were resumed on July 13 when \$1,500,000 of the metal was sent, and on the 26th \$3,137,056 went forward. On the 25th there was a reduction in sterling and in francs to points which stopped further exports of gold. The fall was caused by sales of bills against cotton and breadstuffs futures, and also against securities transferred to the other side, where they could be carried cheaper than here. There was a further fall in sterling to \$4.85½ for long, and \$4.87½ for short on the 29th, but the market reacted Aug. 1, in consequence of dearer discounts in London caused by the large loss of £1,079,327 bullion by the Bank of England. The Bank of France then reported a stock of £50,527,593, the largest since December, 1886. On Aug. 8 the Bank of England minimum was advanced to 3 per cent. from 2½, at which it had stood since April 18, and this caused a fall in long sterling to \$4.85½. There was no change until the 22d, when long fell to \$4.85. It was chiefly affected by dearer money on time, and on the 26th there was an unsettled tone due to liberal offerings of bills which were sold in order to use the proceeds in the loan market. On the 28th there was an advance in the Bank of England rate to 4 per cent. and an upward reaction of half a cent. for long sterling to \$4.84½, and on the 30th there came a rise of one cent in short to \$4.88½, this movement being the result of dearer discounts in London and easier money here. Early in September the market was firm at \$4.85 for sixty-day, and \$4.88½ for sight in consequence of a demand to cover bills previously sold, and also to remit for stocks disposed of for European account. During the second week the rates for both long and short moved up half a cent because of a light supply of commercial bills and higher discounts in the open market in London. On the 26th the Bank of England minimum was advanced to 5 per cent., but there was a reduction in sterling of half a cent, and on Oct. 2 liberal offerings of commercial drafts against cotton and breadstuffs caused a further decline to \$4.83½ for long and \$4.88½ for short. On the 2d \$1,000,000, and on the 5th \$500,000 gold were sent to London on special order from the Rothschilds who were under engagement to Brazil for a conversion loan of £20,000,000, and they did not wish to derange the London market by taking the gold from that center. On the 7th there was a drop to \$4.82½ for sixty days and to \$4.87 for sight, followed by a gradual recovery due to the absorption of the offerings of commercial bills and the withholding of drafts by parties who expected to obtain better prices, and on the 12th the rates stood at \$4.84 and \$4.88 for long and short respectively. On the 14th there was a decline of half a cent, and on the 16th to \$4.82 for sixty-day and \$4.87 for sight in consequence of liberal sales of commercial bills, and the market was also affected by active money. On the 22d the short rate fell to \$4.86½, but the tone was firmer after the 23d because of dearer discounts on London and easier money here. In the closing days of the month the market was again affected by a large supply of commercial bills drawn against cotton, and

the rates declined to \$4.81½ for long and \$4.86 for short. During the first week in November there was a fall of half a cent, carrying the sixty-day bills to \$4.81 and the sight to \$4.85½, and business in the latter was done at figures three fourths of a cent above the gold-importing point. By the middle of the month dearer discounts in London and a lighter supply of bills caused a reaction to \$4.81½ and \$4.86 for long and short respectively, and these rates ruled for the remainder of the month. On Dec. 2 the market was unsettled by liberal offerings of bills drawn against purchases of stocks for European account, and rates for actual business fell to the gold-importing point before the close of the week; but by the 13th the tone grew firmer in consequence of easier discounts in London and a lighter supply of commercial bills. Notwithstanding large withdrawals of bullion from the Bank of England, during the third week in the month, for export to the Argentine Republic and to Portugal, discounts in the open market in London were easy until the close, when the rate advanced ½ of 1 per cent., and the price of exchange rose to \$4.81½ for long and \$4.85½ for short; but on Dec. 26 rates were reduced to \$4.81 for the former and \$4.85 for the latter, and one of our bankers ordered out \$1,000,000 in gold bars from London, but could not get them as the Bank of England offered sovereigns, and as the importation of these would be attended with loss the offer was declined. On the 30th the market was demoralized by the sharp advance in money here and by the rise in the Bank of England rate to 6 per cent., and of the open market discount rate to the same figure, and exchange was reduced to \$4.80 for long and \$4.84 for short, which were the rates on Dec. 31.

Manufacturing Industries.—The year presented strong contrasts among the different manufacturing and mining interests. Cotton manufactures were in a prosperous condition, while those of wool were just the reverse, and there were many failures. The iron product was larger than ever before, and the trade "boomed" after the middle of the year. Anthracite coal was notably depressed, owing to the light consumption, and the output decreased about 3,000,000 tons, while the more widely distributed soft-coal interests were fairly prosperous, in the latter part of the year particularly, and whenever connected with iron production the demand appeared to be unusually active. An article in the "Financial Chronicle," Sept. 14, reviewed the progress and condition of cotton manufactures for the year ending Aug. 31, and showed that the consumption North and South was greater than in any previous year, amounting to 2,685,000 bales. Prosperity was the rule, and the profits to capital were very satisfactory; the dividends on manufacturing stocks at Fall River, Mass., taken as an example, showing \$1,850,000 disbursed on this account against \$1,696,000 in 1888, and the rate averaged 9½ per cent. The wool dealers and woolen manufacturers were notably unfortunate, and during the year the total liabilities involved in their failures amounted to nearly \$10,500,000 against \$3,600,000 in 1888. This was attributed partly to the effect of speculation early in the year, but it was probably due also to the fluctuations liable to take place in a heavily protected

industry when actual changes in the tariff or agitation as to possible changes affect most vitally the interests of every one in the trade. Iron was active beyond all expectations and the demand increased, in the latter months of the year advancing prices of pig iron fully \$2 a ton, compared with the closing figures of 1888. The demand for industrial purposes of all kinds was the less anticipated, since it was well known that railroad construction was falling off, and about 2,000 miles less of road were built in 1889 than in 1888. The anthracite coal trade was a great disappointment, and owing to the open winter of 1888-'89 and the mild temperature up to the close of December the product was only 34,641,017 tons against 38,145,718 in 1888. The price of coal at the mines averaged about 18 cents a ton less. The failures of the year were 10,882 among 1,051,140 in business, and the liabilities were \$148,784,337 against \$123,829,973 in 1888.

The Crops.—The yield of the principal grain crops and of cotton was quite unparalleled this year. The production of oats, corn, and cotton was the largest on record, while that of wheat was estimated at 490,560,000 bushels, or only about 22,000,000 below the great crop of 1884. The large crop of oats and corn, following so closely upon the abundant yield in 1888, reduced prices to a minimum and left the farmers but a small margin of profit. The Agricultural Department's estimate of the average prices of farm products in December were generally lower than ever before. Corn was $29\frac{1}{10}$ cents a bushel against $31\frac{8}{10}$ in 1878, the lowest previous average, while Iowa gave only 19 cents, Kansas 18, and Nebraska 17. Oats were 23 cents against $24\frac{6}{10}$ in 1878 and Kansas and Nebraska gave only 15 cents a bushel. Wheat was $70\frac{6}{10}$ cents against $64\frac{1}{2}$ in 1884; $68\frac{1}{10}$ in 1887; and $68\frac{7}{10}$ in 1886. The early movement of corn to market was checked by these low prices, but it was sent forward very freely by the end of December. Wheat ruled better, owing to the small surplus carried over from the previous year, and winter wheat was promptly sold to millers, so that the best quality did not promptly find its way to

to secure harmonious working and to prevent rate-cutting on all the Western and Southwestern roads. But when the scheme was submitted in its perfected form, at a subsequent meeting, it was met by objections and by propositions for amendment, so that when finally signed the compact embraced only comparatively few roads, but these were the most important in the West. The agreement made in the December previous by the principal Western and Southwestern lines to maintain rates and the results which were clearly manifested after the January returns of traffic were received encouraged expectations that those roads which had declined to join the Interstate Railway Association would at least refrain from disturbing tariffs. But one after another made reductions, and as those were promptly met there was more or less demoralization among lines tributary to the Granger roads. The consolidation of the Cleveland, Columbus, Cincinnati and Indianapolis and the Cincinnati, Indianapolis, St. Louis and Chicago, under the name of the Cleveland, Cincinnati, Chicago and St. Louis, and the purchase by the Vanderbilts of a controlling interest in the Chesapeake and Ohio were among the important events of the year. The adjustment of the financial differences between the Union Pacific, the Northern Pacific, and the Oregon and Transcontinental; the issue of stock to take up maturing bonds of the Louisville and Nashville; the Oregon Short Line and the Denver, Texas and Fort Worth consolidations; the success of the Atchison, Topeka and Santa Fé reorganization; the agreement to issue a blanket mortgage for \$160,000,000 on the Northern Pacific and the co-operation of the Missouri Pacific in the measures for the reorganization of the Missouri, Kansas and Texas were not the least important events of the year.

The following shows gross and net earnings of the principal trunk roads, the reports, except for the Pennsylvania, being made for the fiscal years, and the returns of the New York Central including the operation of the West Shore leased line:

ROADS.	1883-'84.	1884-'85.	1885-'86.	1886-'87.	1887-'88.	1888-'89.
PENNSYLVANIA:						
Gross earnings.....	\$48,566,918	\$45,615,084	\$50,879,077	\$55,671,313	\$58,172,077	\$61,514,445
Net earnings.....	18,039,902	16,135,269	17,759,482	18,584,728	18,840,925	21,510,457
NEW YORK CENTRAL:						
Gross earnings.....	28,148,669	24,429,441	30,506,361	35,297,055	36,132,920	35,696,236
Net earnings.....	10,299,356	8,110,069	11,895,984	12,908,432	8,372,299	9,422,858
ERIE:						
Gross earnings.....	21,637,435	18,934,573	22,500,046	24,210,358	24,882,819	24,595,273
Net earnings.....	5,279,358	4,587,056	6,111,408	6,819,685	6,829,350	6,740,848
BALTIMORE AND OHIO:						
Gross earnings.....	19,436,607	16,616,642	18,422,438	20,659,036	20,353,492	21,303,002
Net earnings.....	7,760,300	5,649,057	6,386,695	6,598,905	6,152,930	6,492,158

the chief distributing centers. Smaller crops in Europe tended to stimulate the movement of spring wheat. Cotton was marketed rapidly in the first four months of the crop year, beginning Sept. 1, and the export movement was almost unprecedented, about 3,000,000 bales going forward at very fair prices.

Railroads.—An important event early in the year was the meeting of railroad presidents in New York, Jan. 10, to organize the Inter-state Railway Association, the purpose of which was

The Stock Market for 1889.—The tendency of the market was generally downward during this year, notwithstanding increased earnings of nearly all the railroads of the country, the maintenance of peaceful relations between the principal lines in the West, abundant crops of cereals, and an excellent business outlook in the fall months. The speculation was unfavorably affected in the autumn and early winter by active money and also by the collapse in sugar and in the other trust certificates.

The market was affected early in January by the conference of railroad presidents and bankers mentioned above. By the 16th the improvement in the market had carried prices to a point that seemed to tempt speculative selling, and this was encouraged by the passing of the dividend on Atchison, Topeka and Santa Fé and also by the unsatisfactory condition of the coal trade. The attacks upon the above-named stock and upon Missouri Pacific were vigorous after the 18th until the 22d, when there was a reaction in these properties, but on the following day the bears assailed the Grangers on news from Chicago that the Chicago, Burlington and Northern would not be represented in the Interstate Association, and as it was an ally of the Chicago, Burlington and Quincy this was regarded as significant. The Grangers were also unfavorably affected by the decision of Judge Brewer declaring that the Iowa State courts might impose penalties for violations of the State law. One feature toward the close of the month was a well-sustained advance in Pullman due to preparations for the absorption of the Union line; another was a fall succeeded by a sharp rise in cotton-seed certificates; still another was a decided improvement in Delaware and Hudson on news that the dividends had been increased to 7 per cent. per annum; and another feature was an advance in Cleveland, Columbus, Cincinnati and Indianapolis on buying preliminary to its consolidation with the Cincinnati, Indianapolis, St. Louis and Chicago, or "Big Four." The speculation was comparatively tame in February although there were some important movements. The Grangers were unfavorably affected by Judge Brewer's decision, above referred to, and also by the refusal of the Chicago, Burlington and Northern to sign the Interstate railway agreement. Pullman advanced in the expectation of an increase in the capital by \$5,000,000 which would be issued to stockholders at par; Cleveland, Columbus, Cincinnati and Indianapolis and Cincinnati, Indianapolis, St. Louis and Chicago moved upward on news that the terms of consolidation were agreed upon, and there was an advance in Atchison, Topeka and Santa Fé due to a covering of short contracts, and also to rumors that the stock was being bought for control. On the 19th a meeting was held in Chicago for the purpose of perfecting the organization of the Interstate Railway Association when it was announced that those roads which had refused to join were the Chicago, Burlington and Northern, the Illinois Central, the Wisconsin Central, the Missouri, Kansas and Texas, and the Kansas City, Fort Scott and Gulf. That evening the Missouri, Kansas and Texas joined, leaving but four dissenting. The refusal of the Chicago, Burlington and Northern prevented the Wisconsin Central from joining. On the 20th the members decided to complete the organization. The market closed generally strong and the most important advances during the month were in Chattanooga, Manhattan Elevated, Oregon Navigation, Pullman, and Cleveland, Columbus, Cincinnati and Indianapolis. The tendency of the market was downward during March. Manhattan rose in the expectation of an increase in the dividend, but it fell off on the announcement that instead

of cash the extra dividend would be in 4-per-cent. bonds. The failure of the Reading Iron Company had an unfavorable effect upon Reading stock, although the Iron Company was an independent concern. The news of the panic in Paris induced the bears to raid the market on the theory that the disturbance would cause a drain of gold from here, but when it was seen that our exchange market was not greatly influenced the bears covered their shorts. One feature toward the close was a sharp advance in sugar trust on news of the declaration of a 2½-per-cent. cash and 8-per-cent. stock dividend. The most decided declines during the month were in Atchison, Topeka and Santa Fé, Chicago, Burlington and Quincy, Manhattan Elevated, Missouri Pacific, New England, Reading, Rock Island, Union Pacific, and Oregon Navigation. April opened with a sharp fall in Atchison, Topeka and Santa Fé on a report that a receivership was inevitable, and there was free selling of New England, Union Pacific, and of other properties managed in Boston, on the theory that the losses resulting from the decline in Atchison would compel the unloading of securities held on the Boston market. Lackawanna, Reading, and the other coal shares fell off by reason of the unsatisfactory condition of the coal trade. Toward the close of the week there was a recovery in all the leading stocks, and the tendency of the market was upward during the second week, the movement being stimulated by large purchases of bonds by the Secretary of the Treasury, which induced a covering of short contracts, and the news from Paris of the successful liquidation of the accounts of the Bourse settlement had a good effect in London which was reflected here. During the third week the market was dull. Oregon Navigation fell heavily in consequence of a report that the guaranteed dividend of 6 per cent. paid by the Oregon short line would be reduced. Pullman rose on the announcement of a decision that the vestibule cars of the Wagner Company infringed the patents owned by the Pullman. New England fell off toward the close of the week on unfavorable reports. During the last days of the month the movement was irregular, but the tone was generally strong, with Louisville and Nashville, the Northern Pacifics, Union Pacific, and the Grangers leading. Early in May the very favorable news regarding the crops stimulated buying of the Grangers. A demand for cash Oregon and Transcontinental marked the beginning of the contest for control of this company, and before the books closed for the election the stock was cornered. The Villard party secured the passage of a resolution by the board of directors providing for the issue of \$10,000,000 preferred stock, but this action was enjoined by the courts, and this compelled the purchase of more common stock in order to control. The election resulted in the success of the Villard party, and the Northern Pacifics were favorably affected thereby. The cornering of Oregon and Transcontinental made the bears in other properties timid, and their efforts to cover carried prices of all the leaders steadily upward, and one feature during the third week was an active and a higher market for all the trust stocks, including sugar, lead, cotton seed, and Chicago

gas. Toward the close of the month Louisville and Nashville, Manhattan Elevated, Manitoba, the Grangers, Atchison, Topeka and Santa Fé, Missouri Pacific, and the Chesapeake and Ohios rose steadily, but in the last days of the month realizing sales and cutting of rates by some of the Granger roads brought about a reaction, and the market was irregular at the close. The business of the Exchange was deranged during the first few days of June by the cutting off of the ticker service, the governors of the Exchange thereby asserting their right to terminate the contracts with the stock-quotation companies. The principal object in view was to deprive "bucket-shops" and the Consolidated Exchange of quotations made on the floor of the Stock Exchange, but this object was only partially attained. During the suspension of the ticker service the details of the disaster at Johnstown, Pa., and in the Conemaugh valley were received, but dealings in stocks were so limited that the news had little influence upon the market, and when the service was restored the effect of the disaster had been discounted. The feature then was a manipulated advance in sugar and in lead trust. Soon after there came a rise in Central New Jersey, in the other coal shares, in New England, and in Atchison, Topeka and Santa Fé. During the third week sugar trust advanced rapidly to the best figures of the year, followed by the other trust stocks and by New England, which was affected by the signing of the bill to permit the inclosing of a pier to be used as one of the terminals of this road. The Grangers were heavy on news of notice by the Chicago and Alton of an intention to withdraw from the Interstate Railway Association, and also because of reductions of rates by the Lake transportation lines. During the last week sugar trust sharply declined in consequence of realizing sales, but it subsequently reacted. The railroad list was irregular, with New England and Reading strongest, and it so continued to the close. During the first week in July there was a panicky fall in sugar trust, due to the discovery of realizing sales, and a drop in Atchison, Topeka and Santa Fé on reports that the financial condition of the company was growing worse. News of a cut in grain rates by the Baltimore and Ohio had an unsettling effect upon the trunk-line stocks. The Grangers were sustained by the expectation that the differences in the West would soon be harmonized. During the next week one feature was a rise in Central New Jersey, on the declaration of a quarterly dividend of $1\frac{1}{2}$ per cent.; another feature was a sharp fall in sugar trust, on the announcement of an adverse decision in the North River Refinery case, but this was followed by a reaction; and still another feature was an advance in Chicago, Burlington and Quincy, on a rumor that it would absorb the Chicago, Burlington and Northern, and thus remove one cause for disturbance of rates in the West. Toward the close of the week lead trust fell on news that the capital was \$83,000,000; the other trust stocks declined in sympathy, and these properties were feverish and lower during the ensuing week. Toward the close Atchison, Topeka and Santa Fé was vigorously raided. The feature in the last week of the month was an advance in the Chesapeake and

Ohios, and in Cleveland, Cincinnati, Chicago and St. Louis. The movement in the other properties was irregular. The feature early in August was a sustained advance in the Northern Pacifics on news of a scheme for a blanket mortgage of \$160,000,000, the directors favoring this negotiation, being desirous of securing a controlling representation in the board. Another feature was a rise in the Chesapeake and Ohios on a report that control of the property was sought by the Vanderbilts. Favorable crop reports induced buying of the Grangers. After the middle of the month the tendency of the market was generally upward under the lead of the Northern Pacifics, the Grangers, Atchison, Topeka and Santa Fé, Louisville and Nashville, and Reading, and the advance was stimulated by comparatively large purchases of bonds by the Secretary of the Treasury. Early in September the stockholders of the Columbus, Hocking Valley and Toledo, being convinced that the property was mismanaged secured, by united action, the resignations of the president and of the treasurer of the company, which resulted in a sharp advance in the price of the stock. Purchasers of Northern Pacific preferred to an amount sufficient to insure the success of the blanket-mortgage scheme, caused a rise in that property. Delaware and Hudson rose steadily, imparting a strong tone to Delaware, Lackawanna and Western. Excellent reports from the crops stimulated buying of the Grangers; there was a gradual improvement in the Vanderbilt specialties, and also in Louisville and Nashville, the latter based upon the satisfactory financial condition of the company. During the third week the Chicago, Burlington and Northern announced a through cut rate to the seaboard from St. Paul, and this had an unsettling effect upon the Grangers, but there was a speedy recovery aided by satisfactory traffic returns. During the last week in the month the bears took advantage of active money and an unsettling fall in sugar trust to raid the market, but the attack was only partially successful. Louisville and Nashville advanced on the announcement of a plan to issue \$13,000,000 of stocks for the purpose of retiring about \$10,000,000 of collateral trust bonds, and subsequently Union Pacific, Manhattan, the Vanderbilts, Western Union, and Central New Jersey rose sharply. In the closing days of the month Atchison, Topeka and Santa Fé and sugar trust were raided, and the market was irregular and lower. The bears made frequent and generally successful assaults upon the trust stocks and the railroad list during October. Preparations for the shipment of \$1,500,000 gold to Europe on special order aided them during the first week, and the only strong stocks were Central New Jersey, Manhattan, and Manitoba. The raiding was renewed in the second week, the trust stocks being selected for attack, and about the strongest properties then were Louisville and Nashville, the Chesapeake and Ohios, Manhattan, and Oregon Transcontinental. During the third week the bears attacked sugar trust, cotton seed, Missouri Pacific, Atchison, Topeka and Santa Fé, the Grangers, and Lackawanna. The reorganization scheme of the Atchison, Topeka and Santa Fé was made public on the 30th. In the following week it was announced that the Union

Pacific and the Chicago and Northwestern had made an important traffic alliance, and this started a rise in these properties. Then came news of preparations for the reorganization of the Missouri, Kansas and Texas, which induced buying of the bonds of that company, and the market was strong until the last few days of the month, when it became irregular, with sugar trust, cotton seed, the Grangers, and the coal shares heaviest. There was further liquidation in the trust stocks during November. Cotton seed was unfavorably affected by news of a shortage of \$577,000 in the accounts, due to a misappropriation of the funds, but \$250,000 of the amount was restored to the company. There was free selling of sugar trust, without any attempt being made by the insiders to support it, and the fall in these specialties unfavorably affected the other trust stocks, and lead was especially influenced by the enforcement of the anti-trust law of Missouri, while Chicago gas was broken down as news of a decision by the Supreme Court of Illinois that the organization was illegal. Missouri Pacific was unfavorably influenced early in the month by a rumor of an intended issue of \$10,000,000 bonds. There was a fall in Reading, based upon the unsatisfactory condition of the coal trade, and a heavy tone for Lackawanna. Louisville and Nashville rose on purchases for European account, and Union Pacific and Denver, Texas and Fort Worth improved in consequence of pending arrangements for the practical absorption of the latter by the former. The good progress made in the Atchison, Topeka and Santa Fé reorganization scheme, caused a rise in that stock. During the second week, although the trust specialties fell off, the railroad list was generally strong, and one feature was a rise in Union Pacific above the price of Missouri Pacific. The strongest stocks in the third week were Rock Island, the Vanderbilts, Union Pacific, Denver, Texas and Fort Worth, Reading, and Lackawanna. There was a slight flurry in the market on the 18th, due to an unsettled movement in London, which was caused by a fall in Brazilians, and later in the day there was an advance in money to 20 per cent., on a report subsequently confirmed that the Secretary of the Treasury intended to call in part of the Government funds on deposit with the national banks. During the last week of the month the tendency of the market was generally downward, sugar trust and cotton seed being the most active of these specialties, and the former fell off twelve points compared with the opening of the week. The success of the Atchison, Topeka and Santa Fé reorganization scheme was announced on the 25th, but this was followed by free selling presumed by those who had refrained from parting with their stock while the bonds were being deposited. On the 27th a fall in Chicago gas trust, caused by the decision of the Supreme Court of Illinois above referred to, had an unsettling effect upon the whole list, and on the 29th news of a destructive fire in Boston on the day before unfavorably influenced the entire market, and particularly the stocks of those roads which are managed in Boston. It subsequently appeared that the amount of loss by this fire was greatly exaggerated. The tone was weak at the close of the month. One feature

was a sharp decline in St. Louis and San Francisco, due to disquieting rumors affecting the management of the property, and notwithstanding a prompt denial of these reports, the stock did not recover. In December the market was more or less affected by active money, by an unsettling fall in the trust stocks, and by bearish demonstrations upon Missouri Pacific. Toward the close of the month, however, there was a better feeling, due to the declaration of extra dividends on the Vanderbilt trunk line stocks, to increased earnings by all the Granger roads, and to an agreement to unite all important interests in the scheme for the reorganization of the Missouri, Kansas and Texas. In the last days of the month business on the Exchange was reduced to a minimum, and prices were depressed by the high rates for money, which on the 30th were forced to 45 per cent.

Total sales of stocks for the year at the New York Exchange were 72,014,600 shares against 65,179,206 shares in 1888; 85,291,028 in 1887; 100,802,050 in 1886; 93,184,478 in 1885; 95,416,368 in 1884; 96,037,905 in 1883; 113,720,665 in 1882; 113,392,685 in 1881; and 97,919,099 in 1880. The transactions in Government bonds at the Exchange in 1889 were \$3,698,850, and in railroad and miscellaneous bonds \$398,825,425.

The following table shows the prices of leading stocks at the beginning of the years 1888, 1889, and 1890:

LEADING STOCKS.	1888.	1889.	1890.
New York Central.....	107½	108	107
Erie.....	28½	27½	26½
Lake Shore.....	94½	104½	104½
Michigan Central.....	87½	87½	94½
Rock Island.....	112½	97	97½
Northwest, common.....	107½	108½	111
St. Paul, common.....	75½	64	69½
Dela., Lackawanna and Western.	129½	144½	135½
Central New Jersey.....	75	95½	125½

Following are the highest and lowest prices of a few speculative stocks in 1889 and 1888:

SPECULATIVE AND OTHER SHARES.	1888.	1889.	
	Highest.	Highest.	Lowest.
Canadian Pacific.....	62½	75	47½
Canada Southern.....	57½	57½	50½
Central New Jersey.....	95½	131	92½
Central Pacific.....	87½	86½	33
Chatanooga.....	85½	104½	81½
Consolidated Gas.....	83½	94½	80½
Delaware and Hudson.....	134	156	130
Dela., Lackawanna and Western.	145½	151	134½
Erie.....	30½	30½	25½
Hocking Valley.....	36½	22½	11
Lake Shore.....	104½	108½	99½
Louisville and Nashville.....	64½	87½	56½
Manhattan Elevated Consol....	98½	109½	90
Michigan Central.....	92½	99½	84½
Missouri, Kansas and Texas.....	18½	14	9
Missouri Pacific.....	80½	78	64½
New York Central.....	111	110½	104½
New York and New England...	53½	58½	41½
Northwestern.....	116	114½	102½
Northern Pacific.....	29½	36½	25
Northern Pacific, preferred.....	64	78½	55½
Omaha.....	42½	37	30½
Omaha, preferred.....	110½	101½	89
Oregon Transcontinental.....	32	64½	28½
Pacific Mail.....	40½	40	31½
Reading.....	54½	50	36
Richmond Terminal.....	29½	27½	19½
Rock Island.....	114½	104½	89½
St. Paul.....	78	75½	60½
Texas and Pacific.....	26½	23	17½
Union Pacific.....	66½	71½	56½
Western Union.....	86½	88½	81½

FINE ARTS IN 1889. Under this title are treated the principal art events of the past year, ending with December, 1889, including especially the great exhibitions in Europe and the United States, the sales and acquisitions of works of art, and the erection of public statues and monuments.

Paris: Salon.—The exhibition (May 1 to June 30) comprised 5,810 numbers, classified as follows: Paintings, 2,771; cartoons, water-colors, pastels, porcelain pictures, etc., 1,194; sculptures, 1,090; engraving in medals and precious stones, 55; architecture, 173; engraving, 527. The receipts of the Salon were 200,000 francs.

Section of painting: Medal of honor awarded to Pascal Dagnan-Bouveret by 217 votes against 115 to Benjamin-Constant. No first-class medal awarded. Second-class medals: Gabriel Guay, Marcel Baschet, Émile Renard, Eugène Berthelon, Paul Émile Boutigny, René Gilbert, Henry Eugène Delacroix, Pierre Outin, Camille Paris, Frédéric Montenard, Théophile Louis Deyrolle, Louis Auguste Loutanneau, Alexis Vollon, Léon Boudot, Charles Édouard Frère. Third-class medals: Louis Gardette, Gustave Césaire Garaud, Mlle. Marguerite Godin, Jean Baptiste Duffand, Georges Henri Fauvel, Émile René Ménard, Léopold Horovitz, Mlle. Aline Billet, Mlle. Thérèse Pomey, Paulin Bertrand, Pierre Bourgogne, Léon Joubert, Paul Renouard, Édouard d'Otémar, Mlle. Thérèse Schwartz. Joseph Salomon, Paul Quinsac, Paul Jean Gervais, Jean Cabrit, Auguste Alexandre Hirsch, Rémy Coghe, Edwin Weeks, Hippolyte Fournier, Eugène Deully, Anders Zorn, Hans Bartels, Evariste Carpentier, Albert Lambert, José Frappa, Stanislas Lépine.

Section of sculpture: No medal of honor awarded. First-class medal: Gustave Michel. Second-class medals: Denys Puech, Georges Gardet, Édouard Charles Houssin, Alexandre Gabriel Laporte, Emmanuel Hannaux, Adolphe Louis Victor Geoffroy, Félix Soules, Alphonse Eugène Lechevreil. Third-class medals: Georges Ernest Saulo, Anatole Guillot, Louis Pierre, Édouard Fournier, Mlle. Marcelle René Lancelot, André d'Houdain, Henri Cros, Pierre Rambaud, François Moreau, Armand Lucian Bloch, Charles Lévy, Louis Grégoire.

Section of architecture: No medal of honor awarded. First-class medal: Pierre Joseph Esquié. Second-class medals: Lucien Fournereau, Paul Wallon, Charles Henri Cazaux. Third-class medals: Paul Allorge, Ernest Brunnarius, Antonin Durand, Philippe Leidenfrost.

Section of engraving: Medal of honor awarded to Achille Jacquet. First-class medal: Jacques Martial Deveaux (line engraving). Second-class medals: Adolphe Gély-Bichard (etching), Eugène Abot (line engraving). Third-class medals: Fernand Desmoulin, Louis Muller, and Mlle. Gabrielle Poynot (etching); Étienne Corpet, Gustave Victor Derache, and Louis Colas (lithography); Léon Ruffe, Georges Thévenin, Émile Roland, and Godefroy Vintraut (wood).

No American received a medal in any of the sections, but three "honorable mentions" were accorded to Miss Mariette Cotton for a portrait; Frederick MacMonies for his "Diana," a statue; and Whitney Warren, for architectural designs.

Dagnan-Bouveret, who received the medal of

honor, exhibited "Bretonnes au pardon," a work of high rank on a medium-sized canvas. In a simple landscape with a church in the background and groups near it, are seven peasant women in black cloth dresses and white caps. One is reading while the others are listening, and two men standing by seem to be equally interested in what is going on. The execution of the work is strong and sober and without artifice.

Jean Paul Laurens's "Les hommes du saint-office" is a vigorous picture, free and luminous in color, and true in tone. It represents two monks seated at the two ends of a table in a spacious hall, one reading from a document, the other reading aloud. The floor is strewn with books and manuscripts, and in the middle of the room is seated an old monk, leaning on his elbow and attentively listening.

François Flameng's chief contribution is "Rollin. Principal du Collège de Beauvais, à Paris," for the staircase of the Sorbonne, a pendant to his "Abélard" of last year. Henri Lerolle's "Albert le Grand au Couvent de Saint-Jacques," also for the Sorbonne, represents a monk, in white robe and black cloak, standing in the center of a court bordered with trees, with pupils grouped in front listening to his discourse. In the background are cloisters and the towers of a church.

Benjamin-Constant's "Le jour des funérailles" represents the corpse of a Moorish grandee stretched out on a magnificent carpet, with a group of women sitting around looking on. All the accessories, arms, jewels, etc., exhibit the painter's extraordinary skill.

Théobald Chartran's contribution to the Sorbonne decorations, "Ambroise Paré pratiquant la ligature des artères sur un amputé," represents a scene from the siege of Metz in 1555, where Ambroise Paré, the famous surgeon of that day, is trying on an amputated limb his ligature for the arteries, he alone keeping cool amid an excited and anxious group of spectators, among whom are several ecclesiastics.

Léon Lhermitte's picture, "Claude Bernard, entouré de ses élèves," for the hall of the Faculté des Sciences, represents Claude Bernard giving a lesson in vivisection amid a group of students and well-known savants, all portraits.

Georges Rochegrosse's "Le bal des Ardents" is the tragic ending of a fête given in the fifteenth century, by Isabel of Bavaria, in which many of the participants, disguised as wild men and satyrs, took fire and met a miserable death.

François Tattetgrain's "Louis XIV aux Dunes" represents an incident eight days after the battle of the Dunes, in 1658, when Louis XIV, in company with Turenne, revisited the scene. The king, to counteract the foul odors arising from decaying corpses, holds a bouquet to his nose. It is an interesting, but disagreeably realistic work.

Carolus Duran exhibited a "Bacchus" representing the god borne along in a triumphal car, surrounded by frenzied Bacchantes. The picture is full of life and shows the perfection of execution, but is otherwise uninteresting. Several exquisite portraits atoned for this aberration.

Gérôme's contribution, bearing for title a verse from Voltaire, is another curious picture representing a Cupid girl with a garland of roses and

leaning on a gilded bow in a cage of gamboling lions, lionesses, and tigresses, who stop in evident amazement to gaze on the apparition. It is supposed to symbolize the power of love.

Among the battle pictures was Moreau de Tours's "En avant! En avant!" an episode in the battle of Froeschwiller (Aug. 6, 1870), representing Colonel de Franchessin, mortally wounded, urging his men forward. Another "En avant!" by Paul Grolleron, shows a body of soldiers hastening through a farm gateway to advance under fire. Gabriel Ferrier's "Bella matribus detestata" is an emphatic protest against war from woman's standpoint. Louis Gardette's "Le Général Margueritte au plateau de Floing, bataille de Sedan," an immense canvas, represents the general's death in the thick of the fight.

Of the religious pictures exhibited, Friedrich Karl von Uhde's triptych "La Nuit Sainte" was one of the most interesting, with real figures from life instead of allegorical fancies. The "Vierge Noire" of Antonin Mercié, and the "Madonna" of Dagnan-Bouveret are also of exceptional interest for fine modeling and delicacy of color.

Landscape painting was well illustrated by Péraire, Pelouze, Pointelin, Galerne, Zuber, Français, Allegré, Casile, Sain, Decanis, and Normann; sea-pieces by Boudin, Courant, Dieterle, Mesdag, and Guillaumet; and animal painting by Barillot, Dieterle, Julien Dupré, Charles Jacques, and Princeteau.

Among noteworthy portraits were the last painted by Cabanel before his death—a woman in black velvet and a young blonde woman in a white dress, the latter left unfinished. Jules Lefebvre exhibited a wonderfully executed portrait of a lady in a velvet dress, Hébert a portrait of General Mirabel, and Van Beers one of Henri Rochefort. Mm. Constant, Cormon, and François Flameng also contributed portraits of women. Jean Béraud grouped in a small canvas the principal writers for the "Journal des Débats," including Léon Say, Jules Simon, Renan, Bardoux, and Jean Lemoine.

Noteworthy among the sculptures of the Salon was the model in plaster of the "Jeanne d'Arc" of Paul Dubois, an equestrian figure in armor, with drawn sword in hand and upturned eyes, as if in prayer before entering battle. It is to be cast in bronze and erected before the cathedral at Rheims. Another equestrian statue of Jeanne d'Arc, by Emmanuel Fremiet, represents an older Maid of Orleans, also in armor, bearing on high the oriflamme. This is a new rendering of the statue of the same artist erected in the Place des Pyramides, Paris.

Denys Puech, who won the Prix de Rome in 1884, gets a second-class medal this year for his "Décollation de Saint-Jean Baptiste"; and Gustave Michel a medal of the first class for his "Fortune enlevant son bandeau."

Paris: Exposition Universelle.—The art exhibition at the Exposition Universelle of 1889 (May 6 to Nov. 6) was one of the most notable ever held. Works of art were divided into five classes: 1. Oil paintings; 2. Paintings other than oil and designs; 3. Sculpture and engraving in medals; 4. Architecture; 5. Engraving and lithography.

The total exhibit of each country in all classes was as follows: France, 2,777; Algeria, 65; Germany, 101; Austria-Hungary, 159; Belgium, 300; Denmark, 248; Spain, 179; United States, 572; Finland, 77; Great Britain, 552; Greece, 91; Italy, 327; Norway, 143; Netherlands, 288; Roumania, 59; Russia, 205; Servia, 26; Sweden, 228; Switzerland, 168. There were also about 125 exhibits from the several South American countries. In addition there was an exhibition called the Centennial of French Art, in which were shown the best examples of the nation's art from 1789 to 1889, gathered from museums and private collections, in seven departments, as follows: Painting, 652; water-colors and designs, 558; miniatures and fans, 76; sculpture, 140; engraving on medals, 129; architecture, 376; engraving and lithography, 465. The French Water-Color Society, too, had a special exhibition of 463 numbers, and the French Pastel Society of about 300 numbers.

Medals of honor and first-class medals were awarded in the section of painting as follows:

Medals of honor: *France*.—Élie Delaunay, Pascal Dagnan-Bouveret, Edouard Détaillé, Fernand Cormon, Jean Gigoux, Raphaël Collin, Ernest Hébert, Jules Dupré, Camille Bernier, Jules Lefebvre, Aimé Morot, Léon Lhermitte, François Flameng. *England*.—Lorenz Alma-Tadema, Henry Moore. *United States*.—John S. Sargent, J. Gari Melchers. *Belgium*.—Alfred Stevens, Émile Wauters, Franz Courtens. *Germany*.—Max Liebermann, Friedrich Karl von Uhde. *Italy*.—Giovanni Boldini. *Austria-Hungary*.—Mihail Munkacsy. *Sweden*.—Richard Bergh. *Russia*.—Joseph Chelmonski. *Finland*.—Albert Edelfeld. *Spain*.—Luis Jimenez. *Netherlands*.—Josef Israels. *Denmark*.—Peter Severin Kroyer. *Norway*.—Werenskiöld.

Gold medals: *France*.—Félix Barrias, Benjamin-Constant, Jean Béraud, Gabriel Ferrier, Albert Fourié, Émile Friant, Ferdinand Humbert, Julien Le Blant, Émile Lévy, Evariste Luminais, Albert Maignan, Luc Olivier Merson, Frédéric Montenard, Germain Pelouse, François Raffaelli, Alexandre Rapin, Émile Renouf, André Rixens, Tony Robert-Fleury, Francis Tattergrain, James Tissot, Paul Vayson, Félix de Vuillefroy, Joseph Wencker, Henri Zuber, Émile Baran, Joseph Blanc, Léon Glaize, Mme. Demont-Breton, Adrien Demont, Eugène Boudin, Paul E. Santai, Émile Breton, Édouard Dubufe, Meissonier fils, Auguste Pointelin, Hector Hano-teau, Gustave Jacquet, Henri Saintin, Émile Adan, Édouard Dantan, Paul Mathey, Emmanuel Damoye, Edmond Yon, René Gilbert, John Lewis Brown, Victor Binet, François Ehrmann, Gustave Courtois, Albert Pierre Dawant, Albert Aublet, Henri Martin, Luigi Loir, Paul Albert Baudouin, Victor Marec, Léon Barillot, Norbert Goeneutte, Henri Pille, Stanislas Lépine. *United States*.—Alexander Harrison, Eugene Vail, E. L. Weeks, George Hitchcock. *Switzerland*.—Mlle. Louise Breslau, Charles Giron, Eugène Burnand. *Belgium*.—Jan Verhas, Alfred Vervée, François Lamorinière, Émile Claus, Théodore Verstraëte. — Strugs. *Netherlands*.—Hendrik Willem Mesdag. *Sweden*.—Carl Larson, Anders Zorn. *Norway*.—Hans Heyerdahl, Eilif Peterssen. *Denmark*.—Vigga Johansen, Albert Auker, Otto Bache. *Spain*.—José Jimenez Aranda, Raimun-

do de Madrazo, Luis Alvarez. *Austria-Hungary.* Albert Hynais, Jules de Payer, Rodolphe Ribarz. *England.*—Sir Frederick Leighton, Edward Burne-Jones, Henry Moore, Alma-Tadema, Hubert Herkomer, J. C. Hook, W. Q. Orchardson, James McNeill Whistler, Stanhope A. Forbes, B. W. Leader, John R. Reid, J. J. Shannon. *Italy.*—Filippo Carcano, Leonardo Barzacco, Angelo Morbelli. *Germany.*—Wilhelm Leibl. *Russia.*—Constantin Makovski, Vincelas Szymankovski, Georg Lehmann, Alexis Harlamoff. *Finland.*—A. Edelfelt. *International Section.*—Arturo Michelena, Zacharie Zakarian.

Paris: Miscellaneous.—One of the most important art sales of the century was that of the Secrétan collection, consisting of a large number of the best examples of the modern French school and of some good "old masters." The sales amounted in the aggregate to 6,045,165 francs. First day, 3,651,000; second day, 1,901,355; third day, 492,810. The following is a partial list of the prices obtained for some of the modern French pictures at the sale, which attracted buyers from all parts of the world: Corot, "Le matin," 56,000 francs; "Biblis" (the painter's last work), 84,000 francs; "Le soir," 16,000 francs; "L'Étang," 6,100 francs. Courbet, "La remise de chevreuils" (Lepel-Cointet sale, 35,000 francs), 76,000 francs. Daubigny, "La rentrée des moutons," 42,000 francs; "Ruisseau dans la forêt," 15,100 francs. Decamps, "Joseph vendu par ses frères," 40,500 francs; "Les singes experts," 70,000 francs; "Le frondeur," 92,000 francs; "Bourreaux tures," 33,500 francs; "Bouldogue et terrier écossais," 46,000 francs. Eugène Delacroix, "Le retour de joueurs de boules à Antibes," 60,000 francs; "Écrivain méditant," 45,000 francs; "La lecture du manuscrit," 39,000 francs; "Le liseur en costume rose," 66,000 francs; "Troupe de Mousquetaires," 36,600 francs; "Le fumeur en costume rouge," 33,500 francs; "Le liseur blanc," 36,000 francs; "Le baiser," 17,000 francs; "Le peintre," 29,000 francs; "Causerie," 26,000 francs; "Portrait de Mme. Sabatier," 7,100 francs; "Récit du Siège de Berg-op-Zoom" (medallion, size of five-franc piece), 20,100 francs; "L'Amateur de peintre," 15,100 francs; "Hussard appuyé sur son cheval," 16,000 francs. J. F. Millet, "L'Angelus," 553,000 francs, American Art Association; "Le retour à la fontaine," 20,600 francs. Th. Rousseau, "La hutte des charbonniers," 75,500 francs; "La ferme sous bois," 58,500 francs; "Jean de Paris," 42,000 francs; "Le printemps," 33,000 francs. Troyon, "Le passage du gue," 120,000 francs; "Vaches au pâturage," 45,000 francs; "Le chien d'arrêt," 70,000 francs; "Pâturage Normand," 31,500 francs; Christophe Colomb" (San Donato sale, 80,000 francs), 36,000 francs; "Tigre surpris par un serpent," 35,500 francs; "Desdémone maudite par son père," 15,000 francs. Diaz, "Diane chasserresse," 71,000 francs, American Art Association; "La descent des Bohémiens," 33,000 francs; "Vénus et Adonis," 36,000 francs; "Vénus et l'Amour," 17,800 francs. Jules Dupré, "Bords de Rivière," 40,000 francs. Fortuny, "Fantasia Arabe," 24,300 francs. Eugène Fromentin, "Gorges de la Chiffa," 43,000 francs; "La chasse au faucon," 41,000 francs; "L'Alerte," 25,700 francs; "En-

fants Arabes," 13,900 francs. Meissonier, "Les cuirassiers" (1805, painted in 1878), 190,000 francs, Duc d'Aumale; "Dans les fossés d'Antibes," 44,500 francs, American Art Association; "Le vin du curé," 90,000 francs; "Le peintre et l'amateur," 63,000 francs; "Jeune homme écrivant une lettre," 65,500 francs; "Joueurs de boules à Versailles," 71,000 francs; "Les trois fameux," 42,000 francs; "La descente des vaches," 37,100 francs; "Berger ramenant son troupeau," 43,000 francs; "La Basse-cour," 36,200 francs.

The sale of the collection of Auguste Dreyfus, comprising 116 numbers, in Paris in June, realized 861,000 francs. Some of the best prices obtained were: Troyon, "Le passage du bac" (sold in 1872 for 32,500 francs), 100,000 francs; "La route du marché" (for which Troyon received 2,500 francs), 62,000 francs. Meissonier, "Jeune homme lisant," 20,700 francs. Édouard Détaillé, "Bonaparte en Egypte" (Salon of 1878), 31,500 francs. Berne-Bellecour, "Les tirailleurs de la Seine au combat de la Malmaison, 1870," 25,000 francs. Théodore Rousseau, "Paysage du Berry," 48,500 francs. Vibert, "Le départ des mariés," 45,500 francs. Vautier, "Noce Alsacienne," 40,000 francs.

The sale of the studio effects of the late Alexandre Cabanel, in Paris, May 22 and 25, produced in the aggregate, 141,081 francs. Of the pictures, "Cleopatra trying Poisons on Prisoners condemned to Death," brought 20,000 francs; "The First Ecstasy of St. John Baptist," 12,500 francs; and "The Triumph of Flora," 3,000 francs.

A bronze replica of Bartholdi's statue of "Liberty Lighting the World," one fifth the size of the original in New York harbor, was erected, in July, at the Île des Cygnes, Grenelle. The figure, which is 11'40 metres high, is elevated on a mole of masonry beside the bridge. It is a gift to the city of Paris by American residents.

London: Royal Academy.—The twentieth winter exhibition was noteworthy as containing no pictures of the Italian schools, being mainly devoted to the Dutch school and to English works of the first half of the present century. Among the former were a noble group of Rembrandts from Buckingham Palace and from the collection of Sir Richard Wallace. Among the English pictures were works by Turner, Constable, Collins, Dyce, R. C. Leslie, etc. Two rooms also were devoted to a loan collection of portraits and subject pictures by Frank Holl, the lately deceased academician.

The one hundred and twenty-first annual exhibition of the Royal Academy contained 2,196 works, selected from about 6,000 contributions, including 1,264 oil paintings, 301 water-colors, 111 miniatures, 138 works in black and white and engravings, 200 architectural drawings, and 182 sculptures.

The principal positions in the first room were occupied by Sir Frederick Leighton, Sir John Millais, and Frederick Goodall. Of Sir Frederick's contributions, "Invocation" (54 × 34) represents a young priestess in white robes standing with uplifted arms in the attitude of invocation. Offerings of grapes are on the altar before her, and in the background are marble columns. In "Greek Girls playing at Ball" (45 × 78) two girls, in flowing draperies which exhibit their form,

are playing on the terrace of a house, against a background of purple mountains and inlets of the Adriatic. The figures and landscape are bathed in summer light. "Sibyl," a third picture represents a dark-haired sibyl sitting in a grotto, her head resting on her hand. Smoke curls upward from a tripod near her, and scrolls lie at her feet.

Sir John Millais contributed "Murthly Water" (40 × 63), a Perthshire landscape on a sunny day in autumn, with trees and hills in background and the Tay at left with a boat drawn up and two sitting figures on the bank. The scene is near Dunkeld, where the painter has his fishing. Another picture "The Old Garden" (45 × 68) represents an old-fashioned Scotch garden in autumn. A fountain with water flowing into a basin from the mouth of a dolphin, on which is mounted a Cupid, is in the foreground, and in the background, over high walls, behind which rise yews, cypresses, and close-cut box hedges, part of a manor house is seen.

Frederick Goodall's chief contribution, "Leading the Flock: Early Morning, Cairo," a Bedouin shepherdess blowing a pipe and followed by a flock of sheep, with the walls of Cairo and the Pyramids in the distance, hung between Sir Frederick Leighton's two single-figure pieces. Another work entitled "The Day of Rest at the Old Home," illustrating a stanza from Tennyson's "Palace of Art," represents a picturesque Queen Anne house, with lawns and meadows, and a brook with a horse drinking in the foreground. The place has belonged to the Blackwell family for two hundred years.

W. Q. Orchardson's principal picture, "The Young Duke" (4 feet 10 × 8 feet), represents the dining-hall of a French noble in the time of Louis XIV. The young duke is seated at the middle of a cross-table, while his guests are rising with glasses raised to drink his health. This picture was one of the successes of the year.

Alma-Tadema exhibited a characteristic picture, "At the Shrine of Venus," showing two Roman ladies, one reclining and one sitting, on a couch in an inner room of a barber's shop. In the background, through a small corridor, are seen others waiting, and at the left one enters, offering to the shrine of Venus the customary offering—a flower.

Frank Dicksee's "The Passing of Arthur" (5 feet × 8 feet), is a Tennysonian rendering of the legend. The body of the king, his armor glistening in the moonlight, lies supported by the three queens, in the middle of the barge, which, manned by spectral oarsmen, is just pushing off from a reedy shore.

Vicat Cole's "The Summons to Surrender" (6 feet 2 × 9 feet 11), represents a scene in the English Channel during the fight with the Armada; Sir Francis Drake, on the quarter-deck of the "Revenge," is summoning Don Pedro de Valdez, whose great galleon is in the center, to surrender. A fitting pendant to this picture is Seymour Lucas's "The Surrender," in which Don Pedro is shown on the deck of the "Revenge," delivering up his sword to Sir Francis Drake.

F. D. Millet's "Anthony Van Corlaer, the Trumpeter" was on the line in the same room. It is an interior, with Diedrich Knickerbocker smoking his pipe in the chimney corner and

watching the buxom lasses hanging around their favorite, the doughty trumpeter.

Hubert Herkomer's "The Chapel of the Charter-House" (6 feet 7 inches × 8 feet 10 inches) recalls, in some respects, the painter's "The Last Muster," exhibited in 1875. The pensioners are assembling in the chapel before the Sunday service. The aim of the painter has been to depict types, not portraits, and each face is supposed to offer a suggestion of the owner's past career. It has been purchased by the trustees of the Chantrey Bequest for £2,200.

Solomon J. Solomon, the painter of "Niobe," one of the successes of last year, exhibited another immense canvas (11 feet × 7 feet), entitled "Sacred and Profane Love." Above, an angel shelters with her wings an allegorical group of husband, wife, and child; below, in the foreground, a nude beauty lures a victim to destruction, pelting him with roses while she drags him over a precipice.

Other noteworthy contributions were Edwin Long's "Jairus's Daughter," "Preparing for the Festival of Anubis," and "Alethe," the attendant of the sacred ibis in the great temple of Isis at Memphis, the young priestess beloved by Alciphron, and heroine of Moore's poem, "The Epicurean"; Luke Fildes's "An Al Fresco Toilet," representing a group of women in gay Venetian costumes in the court-yard of an old palace, one of whom is having her hair combed; landscapes and sea-pieces by Peter Graham, J. C. Hook, Colin Hunter, G. D. Leslie, Henry Moore, and Briton Riviere; and portraits by G. H. Boughton, Herkomer, Oulless, Sant, Millais, John S. Sargent, and John Pettie.

London: Grosvenor Gallery.—The winter exhibition was a continuation of "A Century of British Art," begun last year. It was made up largely of well-known works, such as Wilkie's "Blind Man's Buff" and "Penny Wedding," Reynolds's "Crossing the Brook," Constable's "Lock," Turner's "Calais Harbor," and "Gainsborough's "The Mall." It contained also pastels by Romney, Cotes, Gardner, Russell, etc.

The thirteenth summer exhibition of the Grosvenor Gallery, containing 416 numbers, including oil and water-color paintings, pastels, and sculptures, was attractive, though conspicuous by the absence of many prominent names formerly connected with it. Among the noteworthy pictures was Sir John Millais's "Shelling Peas" (51 × 41), a fair girl, with flaxen hair, seated, shelling peas into a china bowl. It is dedicated to Sir Frederick Leighton. George H. Boughton's "Under the Harvest Moon" (53 × 31), represents a girl, with dark hair and gray costume, standing beside a sheaf of wheat. Ernest A. Waterlow contributed a landscape with a woman and a laden horse in foreground, entitled "A Heavy Load"; J. McWhirter, a study in trees, entitled "The Wierd Sisters"; John Pettie, portraits of Rider Haggard and others; George Clausen, "Plowing"; and Ernest Parton three landscapes.

London: New Gallery.—The "Exhibition of the Royal House of Stuart" at the New Gallery, was one of the most interesting of the season, its purpose being to illustrate by pictures, miniatures, and other relics the history of that notable family. Among the pictures was the

famous diptych from Holyrood, of the school of Mabuse, representing on one panel James III, with his son and St. Andrew, and on the other his queen, Margaret of Denmark, with St. George; the portrait of Mary Stuart at sixteen, in mourning for Francis II, called "Le Deuil Blanc," by Janet, from Windsor Castle; portraits by Zucchero, Honthorst, Van Dyck, and Lily, and a collection of miniatures and engraved portraits.

The second annual exhibition, with more than 400 numbers, showed a creditable advance on that of last year and, like it, was conspicuous by the presence among the exhibitors of many formerly to be seen chiefly at the Grosvenor Gallery.

George Frederick Watts exhibited eight canvases, among which was "The Wounded Heron," interesting in being the painter's earliest work, having been originally shown at the Royal Academy in 1837. "Fata Morgana," another of his pictures (65 inches \times 47 inches) is a scene from Ariosto's "Orlando Innamorato," representing the personification of Fortune. "The Wife of Plutus" is a sleeping nude female figure, showing only the head and bust, grasping her jewels with one hand.

Alma-Tadama exhibited three portraits, one of Mrs. F. D. Millet, and a picture (15 inches \times 20 inches), called "A Favorite Author," representing a girl in white reading from a scroll to another in pink reclining on a couch behind her.

E. J. Pointer's chief work was "A Roman Boat-Race," a fair-haired girl in white, seated with a basket of cherries in her lap, watching a race between several galleys.

W. B. Richmond exhibited portraits and "The Death of Ulysses" (48 \times 58), two figures, with a sunset afterglow on brass moldings and armor. Hubert Herkomer was represented by several portraits, Edward Burne-Jones by a number of studies of heads and figures in pencil and decorative studies in blue, Professor Legros by silver-point studies, and C. E. Hallé by several characteristic pictures.

London: Miscellaneous.—The art sales of the year in London were not remarkable. "The Vale of Clywd," a water-color by David Cox, brought £2,405; and an oil picture by J. C. Hook, "Kelp-Burners in the Shetlands," sold for £1,071. Sir E. Landseer's "Alpine Mastiffs" (1820), brought £1,942 (sold in Ham Hall collection, 1875, for £2,257). Rosa Bonheur's "Landscape with Six Breton Oxen" (Brunel sale, 1860, £1,417), was bid in at 2,500 guineas.

At the sale of the collection of Col. M'Murdo, July 13, Meissonier's "La Vedette" and "Les Mousquetaires" were bought in at 1,600 guineas and 1,250 guineas. Rembrandt's "Death of Lucrezia" brought £3,937. It was bought in 1826 by Sir Thomas Lawrence for 190 guineas, and was sold in the San Donato sale, 1880, for upward of £4,000. "The Laughing Boy," a picture on wood, attributed to Leonardo da Vinci, brought £1,753; and Franz Hals's "Lady in Black, with Lace Collar and Gold Chain," £1,680.

On July 13 seventeen pictures of the Secrétan (Paris) collection were sold in London. Millet's "Le Vannier" (his third picture on the subject), brought £3,570; Delacroix's "Giaour," £1,312; Troyon's "Garde Chasse," £2,940; and his

"Heights of Suresnes," £3,045; and Decamp's "Courtyard," £2,148. Hobbema's "Water Mill," which brought £4,200 at the Hamilton sale, was sold for £3,465, and the great "Landscape," which cost M. Secrétan over £10,000, brought only £5,760.

United States: Exhibitions, etc.—The sixty-fourth annual exhibition of the National Academy of Design (April 1 to May 11) contained 547 numbers, including both oil and water-colors. Noteworthy among the figure pieces were Edward E. Simmons's "Old Man and Child," Robert V. Sewell's "Fisher Folk," Thomas Allen's "Morning on the Market-Place, San Antonio" and "Sunday Morning in Chihuahua," and H. O. Walker's semi-nude "Saint John."

Of landscapes, Du Bois F. Hasbrouck's "Catskill Forest in Winter," Homer Martin's "Coast of Normandy," Swain Gifford's "The Ravine at Naushon, Mass.," and Alden Weir's "Rugged New England," were among the best.

Good portraits were shown by F. D. Millet, Frank Fowler, Kenyon Cox, B. C. Porter, and William Chase. Irving R. Wiles's "Sonata," which may be considered a portrait group, was one of the best pictures in the exhibition.

The Academy prizes of the year were awarded as follow: The Thomas B. Clark prize, for the best American figure composition, \$300, to Irving R. Wiles, for his painting entitled "Sonata." The first Hallgarten prize for best picture in oil painted in the United States by a citizen under thirty-five years of age, \$300, to Robert V. V. Sewell, for his "Sea Urchins"; second best do., \$200, to Kenyon Cox, for his "November"; third best do., \$100, to Frank W. Benson, for his "Orpheus." The Norman W. Dodge prize, \$300, for the best picture painted in the United States by a woman was given to Ella Condie Lamb for "An Advent Angel."

The eighth autumn exhibition of the National Academy of Design (Nov. 18 to Dec. 14) contained 482 numbers.

The fifth annual Prize Fund Exhibition opened at the American Art Galleries, April 26. Mr. Poore's "Night of the Nativity," to which was awarded the only prize given, \$2,000, is a promising work, well composed, though with nothing novel in subject or treatment. It goes to the Buffalo Academy of Fine Arts. Another good work was George De Forest Brush's "The Moose Chase," a wild hunting scene in the Adirondacks.

The Society of American Artists opened their eleventh annual exhibition on May 10 in the Fifth Avenue Art Galleries, with 169 numbers contributed by 99 artists. Though small, it was a remarkably good exhibition, and a credit to American art. Among the more noticeable works were Ernest L. Major's "St. Genevieve," Walter Shirlaw's "The Water Lilies," Edwin O. Blashfield's "St. Michael," Willard L. Metcalf's "Kousse-Kousse Market—Tunis," Will H. Low's "In an Old Garden," and Henry O. Walker's "Philomela." Good portraits were contributed by John S. Sargent, Mr. Thayer, Alden Weir, George B. Butler, J. Carroll Beckwith, and William F. Chase, the last contributing "Little Lord Fauntleroy."

The American Fine Arts Society is a new organ-

ization incorporated in New York. It has been formed by the union of five artistic bodies in New York, viz., The Society of American Artists, the Architectural League, the Art Students' League, the Society of Painters in Pastel, and the New York Art Guild. The object is the erection of a suitable building for the joint use of the societies.

The Metropolitan Museum of Art received valuable accessions during the year, the most noteworthy being Henry G. Marquand's gift of thirty-five pictures, mostly old masters, including two Rembrandts, two Rubens, a Velasquez, two Van Dycks, and others by Lucas Van Leyden, Jacob Ruysdael, Frans Hals, Gerard Terburg, Jan Van Eyck, Gaspar Netscher, David Teniers the younger, Francisco Zurbaran, Gainsborough, Turner, Reynolds, Constable, Bonington, and Prud'hon. Including this collection, the property of the Museum is valued at about \$3,000,000.

Other valuable gifts were: Bastien-Lepage's "Joan of Arc," and Edouard Manet's "Boy with a Sword" and "Woman with a Parrot," presented by Erwin Davis, and Hans Makart's "Diana's Hunting Party," the gift of Mrs. Ellen Josephine Banker.

Rembrandt's "The Gilder," brought to the United States by William Schaus, has been sold by him to Mr. Havemeyer for, it is said, \$75,000, and presented by the latter to the Metropolitan Museum of Art.

The Washington Centennial Loan Exhibition, held at the Metropolitan Opera House, New York, in April, was one of the most interesting features of the celebration. It consisted of a notable array of portraits of Washington, including Stuart's, Wright's, Trumbull's, and Peale's, portraits and miniatures of Franklin, Hamilton, Jefferson, Adams, and other Revolutionary worthies, and a large display of valuable relics connected with that period.

The Barye Exhibition at the American Art Galleries, New York (Nov. 10 to Jan. 15, 1890), was one of the most notable art events of the year. The exhibition was organized by the committee of the Barye Monument Association, for the purpose of raising money for the erection in Paris of a monument to Antoine Louis Barye (1796-1875), the famous sculptor. The Barye collection proper, numbering 453 pieces in metal, wax, and plaster, with a number of water-color drawings and a few studies in oil, of which about half were from the collection of W. T. Walters, Baltimore, and the Corcoran Gallery, Washington, and the remainder were loaned by Cyrus J. Lawrence, James F. Sutton, Samuel P. Avery, R. Austin Robertson, Theodore K. Gibbs, and others. Together with this splendid exhibit, which could scarcely be matched in Paris, were shown 123 paintings by contemporaries and friends of Barye, including J. F. Millet, Théodore Rousseau, Troyon, C. F. Daubigny, Décaings, Corot, Jules Dupré, Diaz, Delacroix, and Gérault. Among Millet's pictures were exhibited the "Angelus," "Breaking Flax," "The Potato Harvest," "The Sheepfold," "Sheep Shearing," "Sea View off Cherbourg," "Le Bout du Village de Gréville," "The Planters," "Buckwheat Thrashers," "Woman making Lye," "After the Bath," "The Gleaners," "The Bara-

theuse," "La Naissance du Veau," "The Sower," "The Grafter," and others. Delacroix was represented by "Christ on the Cross," "Jesus on the Sea of Galilee," "Wounded Tiger," "Les Convulsionnaires," "Tiger and Serpent," "Christ at the Tomb," "St. Sebastian," etc.; Corot by "The Martyrdom of St. Sebastian," "The Evening Star," "Lake Nemi," "Fauns and Nymphs," "The Dance of Loves," etc.; Rousseau by "Le Givre—Winter Solitude," and the others by characteristic examples.

The Stebbins collection, sold in New York, Feb. 12, brought good prices. Some of the highest were: Meissonier, "The Game lost," \$26,300; "Story of the Campaign," \$3,600; "Captain of the Guard," \$3,400; "Stirrup Cup," \$7,100; Gérôme, "Molière breakfasting with Louis XIV.," \$10,500; Vibert, "Spanish Diligence Station," \$9,100; "First Born," \$3,100; Alma-Tadema, "Queen Clotilda," \$6,100; Fortuny, "Spanish Lady," \$6,500; Troyon, "Normandy Castle," \$3,050; Zamacois, "Court Jester," \$2,475; "Levyng Contributions," \$7,200.

The collection of Thomas A. Howell, of Brooklyn, consisting of 65 paintings, was sold in New York, Feb. 27, for \$74,880. C. F. Daubigny's "Evening" brought \$6,150, and his "Morning" \$4,000; Jules Breton's "Watching the Cows," \$5,000; Détaillé's "Windmill," \$4,700; Corot's "Evening," \$4,500; and a "Marine" by Jules Dupré, \$4,000.

The Erwin Davis collection, 143 works, sold in New York in March, contained some famous pictures—Bastien-Lepage's "Joan of Arc," bid in at \$23,400; Troyon's "Pasturage in Normandy," bid in at \$17,500; Delacroix's "Lion Hunt," bid in at \$11,800; and Corot's "The Ford," bid in at \$7,600. Millet's "Haymaker" sold for \$9,100, and Troyon's "Feeding the Chickens" \$7,500. The collection brought in the aggregate \$243,795.

A collection of "old masters," mostly of the more obscure painters of the Spanish-Neapolitan school, mainly formed by the late Don Sebastian Gabriel de Borbon y Braganza, was put on exhibition at the American Art Galleries, New York, in March, by its present owner, the Duke de Durcal. The sale, April 8 and 9, was almost a failure, the total receipts being less than \$12,000.

The monument to the Pilgrim Fathers was dedicated at Plymouth, Mass., on the first of August. The design was made by Hammatt Billings in 1853, the corner-stone was laid in 1859, and the pedestal completed in 1877. The pedestal, which is octagonal, with four large and four small faces, is forty-five feet high. It is surmounted by a figure of Faith, thirty-six feet high, of granite, like the rest of the monument. From the small faces of the pedestal project buttresses, upon each of which stands a figure of heroic size—the four representing Morality, Education, Freedom, and Law. The other faces are ornamented with bas-reliefs, tablets, etc. The entire cost was \$200,000. The figure of Faith, which cost \$32,000, was the gift of Oliver Ames. The figure of Morality was given by the State of Massachusetts, Education by Roland Mather of Hartford, Freedom by the United States Government, and Law by the legal fraternity of the United States. The oration on the occasion was made by W. C. P. Breckenridge,

of Kentucky, and the poem by John Boyle O'Reilly, of Boston.

The arch, erected at the entrance of Fifth Avenue, Washington Square, New York, for the Centennial celebration, from designs by Stanford White, is to be made permanent by rebuilding it on the same plans, in white marble, at a cost of \$100,000.

FLORIDA, a Southern State, admitted to the Union in 1845; area, 58,680 square miles; population, according to the last decennial census (1880), 269,493; capital, Tallahassee.

Government.—The following were the State officers during the year: Governor, Francis P. Fleming (Democrat); Secretary of State, John L. Crawford; Comptroller, William D. Barnes; Treasurer, Frank J. Pons; Attorney-General, William B. Lamar; Superintendent of Public Instruction, Albert J. Russell; Commissioner of Agriculture, Lucius B. Wombwell; Railroad Commissioners, George G. McWhorter, Enoch J. Vann, and William Himes; State Board of Health, Richard P. Daniel, William B. Henderson, William K. Hyer; Chief Justice of the Supreme Court, George P. Raney; Associate Justices, Augustus E. Maxwell and H. L. Mitchell. The new Supreme Court of elective judges was organized in January, under the provisions of the Constitution of 1885, and Judge Raney was selected as Chief Justice by lot.

Finances.—At the beginning of 1888 there was a balance in the State treasury of \$110,646.02. The receipts during the year, from all sources, were \$582,636.75, and the total expenditures \$583,469.69, leaving a balance of \$109,813.08 on Jan. 1, 1889. The receipts of the general revenue fund for 1888 amounted to \$389,551.24; there was a balance of \$43,992.50 in the fund at the beginning of the year, and of \$33,053.59 at its close. The income from licenses decreased from \$130,420.28 in 1887 to \$91,654.57 in 1888, owing largely to the increase of prohibition territory in the State; while the tax on property increased in the same time from \$230,000 to \$270,000. The expenditures from the general fund for 1888 included \$65,393.27 for jurors and witnesses, \$43,261.24 for criminal prosecutions, \$35,984.55 for care of the insane, \$32,673.26 for pensions, \$32,641.87 for salaries of judicial officers, and \$21,300 for salaries of executive officers. The Comptroller, in his annual report, early in 1889, says:

Since the present tax rate of three mills on the dollar for purposes of general revenue was fixed, we have had to meet large expenditures of an extraordinary character, and there has been also a great increase in the annual expenses of the State government. The cost of the Constitutional Convention of 1885, amounting to \$55,500; the appropriations for the East Florida Seminary, the Ocala schools, and the Agricultural College, amounting respectively to \$12,000, \$5,400, and \$7,500—a total of \$80,400—had to be paid out of the income arising from this low rate of taxation. Besides, the support of the normal schools, at an annual cost of \$8,000, the Deaf, Dumb, and Blind Asylum, costing \$5,000, the Teachers' Institute, costing \$1,500 (making annually \$14,500 for school purposes), the salaries and expenses of the Railroad Commission, amounting to \$10,000, the provision for pensions, \$30,000, the cost of criminal prosecutions, reaching \$60,000, the outlay for State troops amounting to \$8,000, making a total of \$122,500, have been added to the annual expenses of the State since the

present rate of taxation was established. The estimated income, at the present rate of taxation, to meet this outlay will be only \$740,000.

In view of these facts, the Legislature this year increased the rate for the next two years to $4\frac{1}{2}$ mills for general purposes, giving the Governor authority to reduce the rate, if the increase in assessed valuation for those years should justify such reduction. An annual tax of 1 mill for schools, of $\frac{1}{2}$ mill for use of the State Health Board, and of $\frac{1}{4}$ of a mill for the Bureau of Immigration were also imposed, making the total rate for each year $6\frac{1}{4}$ mills. The bonded debt of the State remains unchanged at \$1,032,500, but is gradually being absorbed into the various State funds. The amount held by individuals on Jan. 1, 1889, was \$382,300, or \$29,000 less than at the same time in 1888.

Legislative Sessions.—On Jan. 16, soon after his inauguration, Gov. Fleming issued a call for an extra session of the Legislature, to convene at Tallahassee on Feb. 5, for the purpose of carrying into effect the articles of the new Constitution providing for a State board of health and for county boards of health. The failure of the Legislature of 1887 to comply with this article left the people without any State organization for the preservation of public health, and the epidemic of 1888, which might have been averted or controlled, could only be managed by county boards of health, whose jurisdiction was limited. The Governor declined to await the action of the regular session in April, for the reason that a State board, then created, might not have time to organize and meet effectively any outbreak of yellow fever early in the season. To pay the expenses of the board for 1889, the sum of \$50,000 was appropriated. The following acts were also passed at this session:

Repealing the bounty law of 1887 for the destruction of wild cats, wolves, bears, and panthers.

Adopting a memorial to Congress asking for the establishment of an efficient coast guard to prevent infectious diseases coming from foreign ports.

The session ended on Feb. 20, and on April 2 the regular biennial session began, continuing until May 31. Three amendments to the Constitution of 1885 were proposed, changing the election for all State and county officers from the time of the national election in November to the first Tuesday after the first Monday in October in 1892, and every second year thereafter. These amendments are to be submitted to the people at the general election in 1890. The act of 1885 establishing county boards of health was repealed, and a new law was enacted, requiring the Governor to appoint such a board for every county, and subjecting each to the direction and authority of the new State Board of Health. In accordance with the new Constitution of 1885, a Bureau of Agriculture was established and placed in the control of a Commissioner of Agriculture, who supersedes the Commissioner of Lands under the former Constitution. In addition to collecting and publishing agricultural statistics, the commissioner is required to make collections, analyses, and reports relating to minerals and the geological formation of the State; he is made a director of the State Agricultural and Mechanical College, is charged with the supervision of the State Prison, and is directed to keep the Bureau

of Immigration. This bureau, created by another act, consists of the Governor, Secretary of State, and Commissioner of Agriculture, the latter being its president. Its duties are to collect and disseminate such information regarding the State as will tend to attract settlers. In each of the years 1889 and 1890 a tax of one eighth of a mill is levied, and the proceeds placed at the disposal of this bureau. A commission of three persons was created to revise and consolidate the public statutes of the State. Non-residents were forbidden to catch fish in the waters of the State, except for their individual use, unless they should first pay a license tax of \$1,000 per annum for each boat engaged in the business. All citizens of the State are clothed with police powers to arrest violators of this law.

Provision was made for the assessment of an annual poll tax of \$1, which must be paid for two years next preceding any general, special, or municipal election, in order to qualify male citizens to vote, but this rule does not disfranchise persons just attaining majority or recently settled in the State. The Governor, Treasurer, and Comptroller are authorized to borrow temporarily not over \$100,000, to meet the needs of the treasury. The following are the more important appropriations for each of the years 1889 and 1890: For pensions, \$35,000 each year; for jurors and witnesses, \$90,000 and \$120,000; for criminal prosecutions, \$40,000 and \$60,000; for lunatics, \$30,000 and \$40,000; for judicial salaries, \$33,573 each year; for administrative officers, \$16,000 each year; for expenses of the Legislature for 1889, \$70,000; for interest on bonds each year, \$80,000; for the Blind, Deaf, and Dumb Institute, \$6,000 each year; for railroad commissioners, \$10,000 each year.

Other acts of the session are as follow:

Canceling all tax sales of land sold to the State prior to 1877.

Creating a State fish commission to enforce the fish and oyster laws, to inspect oyster beds in the State, and to establish hatcheries.

Fixing the pay of members of the Legislature at \$6 a day.

Providing for the appointment of a State chemist and inspector of fertilizers, prescribing his duties, and regulating the sale of fertilizers in the State.

Creating a State board of pharmacy, prescribing its duties, requiring all dealers in drugs and medicines in cities and towns of over two hundred inhabitants to obtain a certificate of registration from such board, and imposing a license tax of \$500 per annum on all itinerant venders of drugs and medicines. The sale of poisons is forbidden by other than registered pharmacists, except upon a physician's prescription.

Creating a board of medical examiners for each judicial district in the State, and a State board of homœopathic medical examiners, and requiring all practitioners to obtain a certificate from one of these boards.

Regulating the procedure in assignments for the benefits of creditors.

Providing that the standard rule for the measurement of saw-logs shall be Doyle's "Rule and Log-Book."

To provide for the recovery of lost timber and lumber, and creating the office of public eustodian of the same.

Giving the owners of live stock destroyed or injured by any railroad a lien on such road equal to that enjoyed by laborers for the amount of damages sustained.

Prescribing a penalty for persons breaking and entering railroad cars.

Prohibiting the introduction of orange, lemon, or other trees, or parts thereof, affected with the insect known as the "white or cottony cushion scale."

Prohibiting the catching or gathering of sponges along the coast by means of diving. The finding of diving apparatus on any vessel shall be *prima facie* evidence of guilt.

Making the standard time of the central or ninetyeth meridian the legal time for the State.

Punishing persons who remove or willfully run down stakes, buoys, or other marks designating the water channels of the State.

Declaring that the severing and carrying away of farm, garden, or orchard products without consent of the owner shall be punished as larceny.

Incorporating the city of St. Augustine, also the city of New Augustine, and the city of St. Andrews.

Revising the registration and election law of 1887.

Revising and re-enacting the laws governing public schools.

Providing for forfeiture to the State of unearned railroad land-grants.

Assessments.—The following figures are taken from the assessment roll of the State for 1888; total valuation \$87,552,447; value of real estate, including railroads, \$70,616,331; value of personal property, \$16,936,116; number of acres of land assessed in the State, 22,840,320; number of acres improved and cultivated, 652,353; valuation of land (except town or city lots), including value of all improvements, \$38,719,203; valuation of town or city lots, including value of all improvements thereon, \$19,389,816; number of horses and mules assessed, 41,113; number of neat and stock cattle, 505,636; number of sheep and goats, 114,393; number of hogs, 201,812.

Education.—The State Superintendent, in his report for 1888, says:

Every county in the State is now thoroughly organized, and in almost every settlement there is a school the door of which is open to every child, both white and colored, and over 72 per cent. of the children, as enumerated in the school census of 1888, are in attendance. Illiteracy is being rapidly banished from the State, as the older freedmen and their coeval family connections pass out of life, and their children are receiving the benefits of the school, while the children of the white population, especially of the poorer laboring classes are very largely in attendance."

The number of public schools in operation in 1888 was 2,249, an increase of 146 over the year preceding. Of these, 1,536 were for white and 512 for colored children. The total enrollment of white children was 50,696, and of colored children 33,572; the average daily attendance of both races was 53,130. The number of youth of school age was 113,647. There were 1,793 white and 620 colored teachers. In 1882 the State Superintendent reported \$83,532, as the total amount expended for school purposes, to which should be added \$34,000 for counties not reporting, making the total \$117,532. The total amount expended for schools for 1888 was \$484,110.23, making an increase of expenditure of \$366,578.23. The Common School fund in 1882 was \$326,420.71, for 1888 it was \$500,400, showing an increase of \$173,977.29. In 1884 there was distributed of the one mill tax \$27,000, in 1888 \$74,000.

There are 137 colleges and private schools. Notable among these are Rollins College, at Winter Park, under Congregational auspices; DeLand University at DeLand, Baptist; Florida Conference High School and College at Lees-

burg, Methodist Episcopal Church; South and St. John's River Conference College, at Orange City, Methodist Episcopal Church.

Prior to 1857 there were no State schools for higher education. In that year two seminaries were organized, designated as the Seminary East of Suwanee River and the Seminary West of Suwanee River. They had their origin in an act of Congress giving certain sections of land for maintaining a school in each of the districts of the State separated by the Suwanee river and their charter was broad enough to allow of their development into universities. But the State made no appropriations for these institutions for thirty years. The Seminary East of Suwanee River, at first located at Palatka, subsequently at Ocala, and more recently at Gainesville, has had a checkered experience, but for the past ten years has been comparatively prosperous as a secondary school to prepare youth for college. In 1887 it received an appropriation of \$12,000, \$10,000 of which was used in paying off a debt incurred in building a dormitory, and the rest in supplementing its slender annuity. The attendance in May of this year was 66, being less than in previous years on account of the epidemic of 1888. The Seminary West of Suwanee River, at Tallahassee, enjoyed its highest prosperity during the first four years of its existence, just prior to the civil war. In the winter of 1861 it had 250 students, and its income, mainly from tuition, supported six teachers. Since the war it has had a continuous struggle to exist. In May, 1889, the attendance was only 46 against 70 for the year preceding. An appropriation of \$7,500 for the construction of a dormitory was made by the Legislature. In the first year of the two normal colleges, opened in 1887, there were 57 pupils at De Funiak Springs and 52 at Tallahassee. At the State Agricultural and Mechanical College there were about 60 pupils in 1888. In May, 1889, there were 83 pupils, about one fourth of them being in the preparatory department. The college was opened in November, 1884, being endowed with \$155,800, the interest on which is used exclusively to pay the faculty. Since its establishment, the State has appropriated only \$17,500, which has been expended for lands, buildings, and appliances. The present estimated value of the lands is \$10,000, and of the buildings about \$28,000. A further appropriation of \$8,000 for a dormitory was made by the Legislature this year. The Blind and Deaf Mute Institute cared for 25 pupils during 1888. Its expenses during the year were \$5,317.44.

The Insane.—There were in the Florida Insane Asylum at Chattahoochee on Jan. 1, 1887, 192 patients; during the succeeding two years there were 185 admissions, and 141 patients were discharged or died during the same time, leaving 236 persons under treatment on the first day of 1889. The cost to the State for the maintenance of the asylum in 1888 was \$35,984.55.

Convicts.—For several years the State convicts have been employed by C. K. Dutton at his turpentine works in Suwanee County, under a contract expiring Dec. 31, 1889. In September the State authorities concluded a contract with E. B. Bailey, of Monticello, by which, for two years following the expiration of the present lease, he will employ them on his farm, paying

the State \$6,000 for the first year and \$9,000 the second year. On Jan. 1 there were 319 prisoners under State control, a decrease of 20 from the same date in 1888. There were only 7 deaths during 1888. The State has no permanent prison buildings, but the Legislature of 1889 directed the Commissioners of State Institutions to cause suitable buildings to be erected before Jan. 1, 1891, and authorized them to purchase a farm adjacent thereto.

Railroad Commission.—This commission was directed by the act of 1887 creating it to prepare schedules of reasonable transportation rates, which should be adopted and observed by all railroads in the State. During 1887 and 1888 it accordingly prepared and published various schedules, which were observed by nearly all railroads except the Louisville and Nashville Company and the Pensacola and Atlantic Railroad Company. Against the latter company suits were instituted in 1888 in behalf of the State, and judgments in six cases were obtained, amounting to \$14,000. Appeals were taken in these cases to the State Supreme Court upon several points involving the power of the commissioners. During the same year the following questions were decided by the Supreme Court:

1. That the law is constitutional.
2. That an injunction will not lie to restrain the State of Florida from proceeding under the statute to sue a railroad company for the penalty for a violation of the rules and regulations of the commissioners, and recovering the penalty prescribed of not less than \$100 nor more than \$5,000, according as the same may be fixed by the presiding judge.
3. That a writ of *mandamus* will lie from the Supreme Court, to compel the observance by the railroads of the rates of freight and passenger tariffs prescribed by the commissioners.

In May, 1889, the same court decided, in one of the cases appealed by the Pensacola and Atlantic Railroad Company, that the power of the commission did not extend to the enforcement of rates that would not pay the operating expenses of the railroad adopting them, the question whether a certain rate was paying to be determined by testimony in each case. The Legislature amended the act of 1887 so as to allow railroads the opportunity of making their own schedules of rates and submitting them to the commissioners for revision, in default of which the commissioners shall make the schedules as before. Instead of an appeal from the decision of the commissioners to a board of revisers, so-called, the chancery court in each district is made the court of appeal, wherein all railroad appeal cases shall take precedence and be speedily heard and determined. Annual reports to the commissioners are required from each railroad, and reasonable facilities for interchange of cars and traffic at connecting points of different lines.

On Jan. 1, the total number of miles of railroad in the State was 2,326, an increase of 184 miles in one year. The Florida Railway and Navigation Company, controlling 605 miles and the Florida Southern Railway Company controlling 308 miles, are the most important lines.

Phosphate Discovery.—In June an important discovery of phosphatic rock in well-nigh inexhaustible quantities was made near Dunnellen, Marion County. The limits of the phosphate belt are not yet accurately defined, but it

undoubtedly underlies parts of Alachua, Levy, Marion, Citrus, Hernando, Pasco, Hillsborough, Polk, and De Soto counties. The discovery at once proved of great commercial value.

Confederate Pensions.—The amendment of June 7, 1887, repealed the provisions of the former pension act, which required that the claimant should be unable to support himself, and that the pension must be necessary to his support, and provided only that he should have received wounds incapacitating him from manual labor. Its provisions were also extended to soldiers of other States who have resided fifteen years in Florida. These changes largely increased the number of claimants. The pensioners increased from 100 under the former act to 314 on Jan. 1, 1889, and the amount paid for pensions rose from \$9,257.83 in 1887 to \$32,673.26 in 1888. The Legislature of 1889 repealed all former pension legislation and substituted a system of annuities, by which Confederate veterans should receive from \$30 to \$150 annually, according to the extent of their disability occasioned by actual service, the latter sum being also given to widows of those killed in the Confederate service or who have since died of wounds therein received. No one who, or whose wife, holds property worth \$1,000 can receive any benefit under this act. An annual appropriation of \$35,000 was made for it.

FONSECA, DEODORO DA, first President of the Republic of Brazil, born about 1834. He is one of three sons of a wealthy Portuguese, who emigrated to Brazil in order to take possession of lands granted to him in the Province of

major. At the close of the war he was made by Dom Pedro commandant of the army in the province of Matto-Grosso, and decorated with the Order of the Rose. He was afterward assigned to the charge of the Government cartridge factory and magazine at Rio Janeiro, and raised to the rank of general. While in Rio he organized a military club from among his brother officers, and gained great popularity. Despite the honors that had been showered upon him by the Emperor, he appears to have imbibed republican ideas, and it is alleged that the club which he formed was instrumental in fomenting discontent throughout the army. This fact was recognized by the Government to the extent that it was deemed desirable to remove Fonseca from the capital, and he was accordingly transferred to a command in Matto-Grosso, of which he was afterward made governor. It is said that since 1881 Fonseca has been a pronounced republican. The seeds of discontent that he planted in the army continued to grow after his deportation. The rest of the world first heard of Gen. Da Fonseca when, in November, 1889, he caused the following dispatch to be sent to the Brazilian minister in London:

RIO DE JANEIRO, *Nov.* 18.

The republic has been proclaimed. The Provisional Government has entered upon its functions, which it will exercise until the nation, through the proper channels, resolve upon the definitive form of government. His Highness Dom Pedro de Alcantara has left in a Brazilian war-ship for Lisbon. All previous national compacts are recognized by the new government, including the public debt, both internal and external, and all contracts at present in force.

DEODORO DA FONSECA.

In personal appearance President Fonseca is short, sinewy, and dark complexioned, wearing a gray mustache and beard. His eyes are remarkably bright, and his manner is described as vehement and impressive.

FRANCE, a republic in western Europe. The present Constitution, adopted by the National Assembly on Feb. 25, 1875, and revised in 1884 and 1885, vests the legislative authority in the two houses of the National Assembly, and the executive authority in the President of the republic, who is elected for seven years by the two chambers, which unite in joint session for the election of the President or for the consideration of constitutional changes. The members of the Chamber of Deputies are elected by universal suffrage for four years in the proportion of one to every 70,000 inhabitants. Members of dynastic families that have reigned in France are ineligible for either chamber. The Senate consists of 300 members, of whom 75 formerly held their seats for life. These seats, as they become vacant, are filled, under the law of 1884, by senators elected in the ordinary way for nine years. The senators are elected by electoral colleges in each department, composed of delegates from the communes, members of the Council General, and deputies of the departments. The Chambers meet in regular session on the second Tuesday in January. The President must convoke them at any time when a majority of the members of each chamber request it, and, on the other hand, he can adjourn the chambers when he thinks it best, but not for a longer time than one month, and not oftener than twice during



DEODORO DA FONSECA.

Rio Grande do Sul. Here he settled, and married a Brazilian lady. His son Deodoro was educated at the Polytechnic School in Rio Janeiro, and on graduation joined the army. In 1865 the war broke out between Paraguay on the one side, and Brazil, Uruguay, and the Argentine Confederation on the other. This war lasted five years, and Fonseca is credited with having distinguished himself in the battle of Mossoro, being promoted, on the field, from lieutenant to

the session. With the approval of the Senate he can dissolve the Chamber of Deputies, in which event new elections must be held within three months. The deputies are paid 9,000 francs per annum, and the senators 15,000 francs. Every act of the President must be countersigned by a minister. The ministers are responsible to the chambers individually and collectively.

The President of the Republic is Marie François Sadi Carnot, elected Dec. 3, 1887. The ministry in office at the beginning of 1889, appointed on April 3, 1888, was composed of the following members: President of the Council, Minister of the Interior, and Minister of Posts and Telegraphs, Charles Floquet; Minister of Foreign Affairs, René Goblet; Minister of Public Instruction and the Fine Arts, Edouard Lockroy; Minister of Justice and Public Worship, M. Ferrouillat; Minister of War, Charles de Freycinet; Minister of Marine and the Colonies, Vice-Admiral Krantz; Minister of Commerce and Industry, Pierre Legrand; Minister of Public Works, M. Deluns-Montaud; Minister of Agriculture, François Viette.

Area and Population.—The area of the republic is 528,572 square kilometres, or 204,177 square miles. The population, according to the census of May 30, 1886, is 38,218,903, showing an increase of 546,855, which was at the rate of .29 per cent. per annum since 1881, the increase for the previous five years having been at the rate of .42 per cent. per annum, and for the four years between 1872 and 1876 at that of .5 per cent. The population present on Dec. 18, 1886, was 37,930,759, comprising 18,900,312 males and 19,030,447 females. The number of families was 10,563,782, an average of 3.9 individuals to a family. The number of dwellings was 7,706,137. There are 1,230,000 persons who speak Breton Celtic, 768,000 of them knowing no French; 116,000 inhabitants of Pyrenean departments whose language is Basque; and 300,000 persons in Corsica and Nice who speak Italian. The number of marriages in 1887 was 278,056; births, 899,333; deaths, 842,797; excess of births over deaths, 56,536. The percentage of illegitimate births was 8.20. Since August, 1884, when the divorce law went into force, there have been 17,177 divorces granted. The ratio fell from 6.6 to every 10,000 married couples in 1884 to 4 in 1886, and then rose again, in consequence of a simplification of the procedure, to 6.1 in 1888. One third of the divorces have been obtained by residents of Paris. The causes have been, in nine cases out of ten, cruelty and desertion. In nearly half the cases the divorced couples were childless. The number of emigrants in 1885 was 6,013, the majority of them going to the United States and the Argentine Republic. The population was divided in 1886 in respect to occupations as follows: Engaged in agriculture, 17,698,402; in industry, 9,289,206; in commerce, 4,247,764; sailors, fishermen, railroad employes, etc., 1,020,721; public forces, 613,362; engaged in the professions, 1,805,260; living on income, 2,295,966; without occupation, 728,273; occupation not known, 231,803. The owners of farms, with their families and employes, numbered 9,545,374; other farmers, 6,668,111; nurserymen and gardeners, 983,760; persons dependent on forest industries, 501,157. Of the proprietors 20

per cent. were women. The large manufactories employed one third of the industrial class, and small industries the remainder. Of the professional class 50 per cent. were public officials. The following cities contained more than 50,000 inhabitants in 1886: Paris, 2,344,550; Lyons, 401,930; Marseilles, 376,143; Bordeaux, 240,582; Lille, 188,272; Toulouse, 147,617; Nantes, 127,482; St. Etienne, 117,875; Havre, 112,074; Rouen, 107,163; Roubaix, 100,299; Rheims, 97,903; Amiens, 80,288; Nancy, 79,038; Nice, 77,478; Angers, 73,044; Brest, 70,778; Toulon, 70,122; Nîmes, 69,898; Limoges, 68,477; Rennes, 66,139; Dijon, 60,855; Orleans, 60,826; Tours, 59,585; Calais, 58,969; Tourcoing, 58,008; Le Mans, 57,591; Montpellier, 56,765; Besançon, 56,511; Grenoble, 52,484.

A census of Frenchmen residing abroad, taken by the consuls, showed that in 1886 the total number ascertainable was 408,000, of whom 200,000 were in Europe, viz., 54,000 in Switzerland, 51,000 in Belgium, 26,000 in Great Britain and Ireland, 17,000 in Spain, 10,000 in Italy, and 42,000 in other countries. The number in North America was 120,000; in South America, 40,000; in Africa, 30,000; in Asia, 15,000; in Oceania, 3,000. A considerable proportion of the emigrants consists of priests and nuns.

Finances.—The budget for 1889 makes the total revenue 3,755,674,682 francs, including 192,952,260 francs of extraordinary revenue, 464,163,647 francs of special resources, and 87,166,100 francs of appendices *pour ordre*. The ordinary revenue amounts to 3,011,392,675 francs, of which 444,859,860 francs are derived from direct, and 2,556,532,815 francs from indirect taxes and state property. The land tax produces 180,953,000 francs; personal-property tax, 73,125,000 francs; the tax on doors and windows, 48,404,400 francs; trade licenses, 103,894,400 francs; taxes on carriages, horses, weights and measures, mines, clubs, and other special taxes, 29,052,560 francs; direct taxes of Algeria, 9,430,500 francs; registry taxes, 513,080,000 francs; stamps, 157,604,000 francs; customs, 347,342,600 francs; excise, railroad passenger, and other indirect taxes, 591,526,000 francs; tax on revenue from personal property, 48,878,000 francs; tax on sugar, 176,560,000 francs; indirect taxes of Algeria, 19,185,800 francs; state monopolies and posts and telegraphs, 586,035,079 francs; domains and forests, 44,394,148 francs; various other sources of revenue, 81,927,188 francs. The total ordinary expenditure is set down as 3,010,752,652 francs. Of this sum 1,291,676,345 francs are devoted to the service of the public debt, 13,263,083 francs to the expenses of the President, the Senate, and the Chamber, 327,853,769 francs to the expenses of administration, 22,032,700 francs to repayments, and the following amounts to the various ministries: Justice, 37,597,350 francs; Foreign Affairs, 14,227,700 francs; Interior, 71,240,348 francs (France, 63,993,913 francs; Algeria, 7,256,435 francs); Finance, 16,698,270 francs; Posts and Telegraphs, 1,904,909 francs; War, 556,717,170 francs; Marine, 192,661,104 francs; Colonies, 56,763,633 francs; Public Instruction, 135,953,135 francs; Fine Arts, 12,809,605 francs; Religion, 45,366,545 francs; Commerce, 22,308,218 francs; Agriculture, 21,593,585 francs; Public Works, 170,075,183 francs (ordinary, 105,379,-

014 francs; extraordinary, 64,696,169 francs). The appendices to the general budget consist of receipts and expenditures for special services, viz., 32,400,000 francs for state railroads, 13,914,700 francs for naval invalids, 9,307,500 francs for the national printing office, 16,815,700 francs for the Legion of Honor, and 10,373,500 francs for the savings bank. By subsequent votes of the Chamber the total ordinary expenditure was increased to 3,011,362,416 francs, while the extraordinary budget was cut down to 154,654,260 francs. The revised estimates for 1888 make the total revenue (ordinary, extraordinary, and special) 3,543,030,861 francs, and the total expenditure 3,542,462,927 francs.

The budget estimates under the republic, as under previous governments, show a small surplus in the estimates, which is turned almost invariably into a large deficit in the final accounts. The sum of the deficits from the time of the first republic down to the fall of the third empire was 1,011,865,675 francs. Under the third republic, from 1870 till 1886, this total was increased to 1,338,640,198 francs. The consolidated debt has grown from a capitalized value of 12,454,000,000 francs before the German war to 21,256,639,288 francs in 1889, and the annual *rente* from 386,000,000 francs in 1871 to 739,545,965 francs. The nominal capital was divided into 14,466,853,533 francs of 3 per cent. *rente*, on which the annual interest is 434,005,606 francs, and 6,789,785,755 francs of new 4½-per-cent. stock, paying 305,540,359 francs in annual interest. The expenses of the redeemable debt are set down in the budget for 1889 as 335,335,014 francs, and the interest on the floating debt as 28,900,000 francs. The amount of the floating debt on May 1, 1888, was 977,327,700 francs. Civil and military pensions and annuities absorb 216,795,366 francs per annum. Excluding these, the value of liabilities of the Government was reckoned in 1888 at 29,514,000,000 francs.

The Army.—The French army is organized in 19 *corps d'armée* and the government or military district of Paris. The 18 army corps of the mother country are divided into 2 divisions, each comprising 2 infantry brigades, of 2 regiments. The Nineteenth Army Corps, stationed in Algeria, has 3 divisions of infantry, and another division is garrisoned in Indo-China. The colonial troops, including those stationed in Tunis and the brigades at Bac-Ninh, Son-Tay, Saigon, and Hué, comprise altogether 16 infantry brigades. Besides the 144 regiments of the line in France, there are 18 regional regiments and 30 battalions of rifles. To the infantry also belong 4 regiments of zouaves, 4 regiments of Algerian rifles, 2 regiments of the Foreign Legion, and 3 battalions of light African infantry. The cavalry comprises 6 independent divisions and 6 cavalry inspections for the mother country and 1 for Algeria, each cavalry division and inspection in France consisting of 3 brigades of 2 regiments, while the one in Algeria has 6 regiments of African chasseurs and 4 regiments of spahis. There are besides 6 independent brigades of cuirassiers, 5 of dragoons, 4 of chasseurs, and 3 of hussars, while a brigade of cavalry is attached to each of the 18 army corps. Of field artillery there are 19 brigades in France and 1 in Algeria; of fortress artillery, 16 battalions; of engineers, 4 regiments,

comprising 20 battalions; of train, 20 squadrons. There are 15 councils of war, committees, and commissions, 10 artillery artificer companies, 3 ammunition companies, and 5 correctional companies, the latter comprising 4 fusileer companies in Algeria and 1 of pioneers in Tonquin. The head of the French army is the Ministry of War, which is divided into the Cabinet, the General Staff, the Comptroller-General's department, the interior service department, and the directions of the infantry, cavalry, artillery, engineers, administrative service, powder manufactories, and hygiene. The French General Staff is twice as numerous as the German, numbering not fewer than 1,047 officers, of whom about 300 are actually assigned to staff duties, while the others in time of peace are with the troops. The army list contains a great number of general officers, viz., 2 marshals, 97 generals of division, exclusive of 8 superannuated, and 190 generals of brigade, of whom 8 are without commands. In staff officers, ordnance officers, and adjutants, the French army is much more freely endowed than the German. The staff at the headquarters of every army corps comprises 61 officers and officials, and the staff of every division 25.

After four years of discussion in the chambers, the project of army reform was finally adopted in the form given to it by the Senate on July 9, 1889. The bill passed three times back and forth between the two chambers, and finally was referred to a joint committee of both houses, and would have advanced no further had the Chamber not sacrificed the principle of equality in regard to the period of service of candidates for the liberal professions, including the priesthood. The bill with the Senate's amendments passed the Chamber by a party vote of 386 to 170. The principal changes in the military system are 1, the formal adoption of the three year's service, which had already been gradually introduced by decrees; 2, the entire abolition of the one-year volunteer system and of legal exemptions; 3, limitation of one-year service to students of the liberal sciences and the inmates of certain higher educational institutions; 4, the extension of the total period of military duty from 20 to 25 years. The shorter term of active service enables a larger proportion of the citizens to be trained for war, augmenting the annual contingent of recruits from 130,000 to 200,000. In conjunction with the prolongation of liability to serve till the forty-seventh year of life, it increases the war strength of France in trained men from 2,000,000 to 3,000,000, according to the computation of M. de Freycinet. Formerly, in addition to those who got off with one year's service by paying 1,500 francs and passing an examination, large numbers from the commercial and wealthy classes escaped altogether by means of dispensations which could be granted to only sons of widows, the eldest sons of large families, sons representing invalid parents, and those necessary for the support of the family. The entire exemption of candidates for the priesthood was one of the attractions that led many to embrace that unremunerative calling. The most spirited contest took place over the removal of this immunity. M. de Freycinet declared that the seminarist or priest must be subject to the universal law and be compelled to serve his country with "knapsack on his back."

The Republican majority in the Senate reduced the term of active service for students for the ecclesiastical as well as for other liberal professions to a single year; and, without releasing them from the obligation to serve on the field of battle, secured their exemption from the unclerical duty of bearing arms, assigning to priests and seminarists in war the more becoming task of carrying and nursing the sick and wounded. Military officers did not generally approve the democratic reform of the army, asserting that for the cavalry and the marine service at least three years were not enough to train a soldier to his duties, and that short service would aggravate the dearth, already felt, of competent non-commissioned officers. To obviate the latter difficulty the bill contains a provision for re-engagements with successive increases of pay and bounties and a full pension at the end of twenty-five years of service. The law requires every physically capable citizen who has completed his twentieth year to serve one year with the colors. As the budget will not allow the maintenance of the active army at its full nominal strength, others besides students and seminarists are excused from further service at the end of a year to the extent of one third of the total contingent, those who obtain furloughs being chosen by lot or exempted on family grounds which are judged by the council of the department. On the insistence of the Senate the national system of recruiting was retained instead of the regional, which has been found by experiment to make recruiting and mobilization more difficult and expensive and to be prejudicial to discipline. All who are exempt from military service by reason of physical disability or who do not complete the full term of three years must pay a poll tax of six francs and a supplementary tax proportionate to their pecuniary means. Neither students nor others are granted leave of absence at the end of twelve months' service unless they have proved their military efficiency.

The effective strength of the army was increased by special measures to correspond with the increase of 50 per cent. expected to result from the new army law. In the beginning of the year the artillery was increased, and by the act passed in July, the field artillery was again strengthened by 19 batteries or 114 guns, 3,914 men, and 3,344 horses, almost doubling the peace effective. Each of the 18 military districts is prepared to mobilize, in addition to the 2 divisions of the standing army, 2 divisions of *garde mobile*, and 1 division of the territorial army. The entire period of military liability under the new law is divided into three years or one year respectively in the active army, six and a half or eight and a half years respectively in the regular army reserve, six years in the territorial army, and nine and a half years in the territorial army reserve. In order to provide officers for the territorial army, which has five battalions in each regiment, and is to be mobilized in stronger numbers than the army of the first line, a new law empowers the Minister of War to retire officers on pensions after twenty years of service. The cost of supporting the army has been reduced since 1876 from 961 francs per annum for each unit, horses as well as soldiers being counted as units, to 860 francs.

The budget for 1890 provides for a strength of the various arms of the service as below :

ACTIVE ARMY.	Officers.	Men.
Infantry.....	11,762	314,801
Administrative.....	.....	16,073
Cavalry.....	3,627	73,282
Artillery.....	3,149	73,437
Engineers.....	428	10,611
Train.....	412	11,423
Gendarmerie.....	651	22,056
Garde Républicaine.....	82	2,966
Total.....	20,111	524,684

These estimates do not include the marine corps, amounting to about 20,000 men, nor the colonial troops, nor the reservists called out for drill. The latter are unusually numerous, amounting to 298,064 men of the army reserve and 194,280 of the territorial guard. In Algeria there are 2,000 officers and 55,000 men; in Tunis, 474 officers and 12,000 men. The force in Indo-China in 1888 was 17,000 men; but in 1889 it was reduced to 14,000. The losses through disease in that climate have been a serious misfortune for France. In 1885 no fewer than 3,778 died; in 1886, 1,666; in 1887, 1,456. There are native troops in Tonquin, as in the other colonies, and the Government intends to fit the five Tonquinese rifle regiments, by means of the re-enlistment of time-expired men, to take the place of French troops as far as possible, and to withdraw the latter from the scattered small posts. The ordinary army budget for 1890 amounts to 550,652,400 francs, exceeding that of 1889 by 7,241,346 francs. The extraordinary budget, with a supplementary credit voted in June, is 730,731,000 francs, of which 556,000,000 francs are assigned to the artillery. Experiments were made with a monster Bange cannon at Calais which, with 200 kilogrammes of powder, made a direct shot of 15 kilometres. A test of the 8-millimetre repeating rifle of the model of 1886, in comparison with the old 11-millimetre rifle of the model of 1874, shows remarkable superiority in penetrating power at all distances above 100 metres. For 600 metres the trajectory remains within the height of a man. Smokeless powder has been adopted for the artillery as well as for the infantry. It emits a faint bluish vapor which is invisible at slight distances, and the sound of detonation is also much less than that made by ordinary powder.

The Navy.—The effective armor-clad navy in 1889 comprised 31 battle ships and sixteen vessels suitable for coast defense. The sea-going iron-clad fleet consisted of 15 barbette ships, 7 central battery ships, 3 turret ships, 4 barbette cruisers, and 2 broadside ships. The protected coast-guards comprise 2 barbette ships, 6 turret ships, 5 armored gun-vessels, 2 floating batteries, and 1 cruiser. The torpedo flotilla numbered 13 torpedo vessels, 10 sea-going torpedo boats, and 51 torpedo boats of the first, 62 of the second, and 40 of the third class. The other vessels of the navy in commission were 7 frigates, 24 first-class and 15 second-class corvettes, 14 first-class and 9 second-class screw dispatch vessels, 36 gunboats, 15 paddle-wheeled gunboats, 25 transports, 10 dispatch transports, 12 small gunboats, 9 sailing vessels, and 13 training-ships. Of the ironclads now ready for service the most

powerful are the "Amiral Duperré," the "Indomptable," the "Cainan," the "Terrible," the "Courbet" (late "Foudroyant"), and the "Dévastation." The two last named are built mainly of steel, of about 9,500 tons displacement, and armed with four 48-ton and four 28-ton guns. The "Requin," a sister-ship to the "Cainan," the "Terrible," and the "Indomptable," belted vessels with 19 $\frac{1}{4}$ -inches of compound armor at the water-line and 75-ton guns mounted *en barbette* in two towers, was launched at Bordeaux in June, 1885. In April of that year the "Formidable," with 22 inches of armor, and designed to carry three 14 $\frac{1}{2}$ -inch guns, was launched at Lorient. Of the same type is the "Amiral Baudin," which is approaching completion. The "Hoche," the "Morceau," and the "Neptune," having 18 inches of armor and 10,580 tons displacement, were launched in 1886 and 1887. In all the later iron-clads horizontal steel armor is used in order to protect the decks, and all the large guns are mounted *en barbette* and can be aimed in almost any direction. The "Brennus," of 10,480 tons, is on the stocks at Lorient, and the "Magenta," of 10,400 tons, at Toulon, but on the former no work has been done since March, 1886. The naval authorities are divided in opinion regarding the value of large ironclads, and the Government has decided to begin no more at present, but to complete those under way and to build more cruisers. There were begun in 1887, 2 armored cruisers, 3 first-class cruisers of about 4,200 tons, 3 second-class cruisers of 3,000 tons, 3 third-class cruisers of 1,900 tons and a speed of 19 or 20 knots, and several torpedo boats, and there were already building 2 battery cruisers, 3 third-class cruisers, 4 first-class and 4 second-class gunboats, 6 transports and dispatch vessels, and a large number of first-class torpedo boats. In consequence of the loss of a torpedo boat off Havre in March, 1889, the Minister of Marine ordered all of the same type, 50 in number, to be altered so as to make them more manageable. The total appropriations for the navy in the budget for 1889 are 220,873,804 francs. Admiral Krantz ordered two new protected cruisers to be laid down, and asked in June for an extraordinary credit of 50,000,000 francs.

Commerce and Industry.—The total value of the general commerce in 1887 was 4,943,000,000 francs of imports and 4,238,000,000 francs of exports. The special imports, consisting of merchandise consumed in France, amounted to 4,026,000,000 francs; and the special exports, or exports of French produce, were 3,246,500,000 francs in value. The imports of coin and bullion were 271,217,752 francs, and the exports 396,701,857 francs. The imports of cereals were of the value of 289,200,000 francs; exports of cereals, 18,900,000 francs; imports of wines, 443,700,000 francs; exports of wines, 233,700,000 francs; imports of raw silk, 274,700,000 francs; exports of raw silk, 141,400,000 francs; exports of silk manufactures, 209,800,000 francs; imports of wool, 325,600,000 francs; exports of wool, 120,400,000 francs; exports of woollen manufactures, 350,400,000 francs; imports of cotton, 203,300,000 francs; exports of cotton manufactures, 117,800,000 francs; exports of other textiles and yarns, 268,000,000 francs; imports of textile manufactures, 223,900,000 francs; im-

ports of skins and hides, 152,800,000 francs; exports of skins, 57,300,000 francs; imports of leather, 36,700,000 francs; exports of leather and leather manufactures, 219,800,000 francs; imports of coal, 126,200,000 francs; imports of minerals and metals, 131,000,000 francs; imports of tobacco, 20,000,000 francs; imports of sugar, 38,200,000 francs; exports of sugar, 58,900,000 francs; imports of coffee, 132,200,000 francs; imports of animals, 77,500,000 francs; imports of preserved meats, 38,800,000 francs; exports of butter, cheese, and eggs, 112,300,000 francs; exports of animals and animal products, 104,300,000 francs; imports of fruits, 73,900,000 francs; exports of fruits and vegetables, 69,200,000 francs; imports of oils and oil seeds, 170,900,000 francs; exports of vegetable oils, 25,800,000 francs; imports of wood and timber, 183,600,000 francs; exports of timber, 25,300,000 francs; exports of horses and mules, 47,500,000 francs; imports of machinery, 43,500,000 francs; exports of metal goods, arms, etc., 74,200,000 francs; exports of jewelry, watches, *articles de Paris*, etc., 214,700,000 francs; exports of millinery, artificial flowers, etc., 27,000,000 francs; imports of paper, books, etc., 33,500,000 francs; exports of paper, etc., 45,000,000 francs; exports of chemicals, 48,100,000 francs.

The share of each of the principal countries in the special imports and exports of 1887 is given in the following table, the figures representing millions of francs:

COUNTRIES.	Im-ports.	Ex-ports.	COUNTRIES.	Im-ports.	Ex-ports.
Great Britain..	476	520	Algeria	134	153
Belgium	414	481	Russia	179	15
Germany	322	316	British India ..	182	8
United States ..	325	271	Turkey	97	47
Spain	357	149	Brazil	69	60
Italy	308	192	China	118	4
Argentine Re-public.....	182	144	Austria	99	20
Switzerland ...	105	217	Portugal	88	22

The total values, in francs, of the special commerce for 1888 and of the imports and exports of the leading groups of commodities are given in the following table:

GROUPS.	Imports.	Exports.
Alimentary products	1,435,186,000	669,270,000
Raw materials	1,906,752,000	690,478,000
Manufactured articles	545,053,000	1,656,317,000
Other articles	115,914,000	194,665,000
Total	4,052,905,000	3,210,730,000

As compared with 1887 the returns indicate a slight improvement in the economic situation, although trade suffered from the political insecurity, and especially from the tariff war with Italy. The imports of food stuffs show an increase of 80,000,000 francs, notwithstanding the higher grain duties, which yielded 68,300,000 francs in 1888, or more than ten times as much as in 1883. The increase was most noticeable in flour, which is least affected by the new tariff. The imports of cereals, 77,000,000 francs more in value than in 1887, came not from the United States, as formerly, but from Russia, Roumania, India, and Australia. The import of wine was valued at 443,000,000 francs, and the export at 211,000,000 francs, showing a decline in the lat-

ter of 22,000,000 francs from the total for 1887 and of 48,000,000 francs as compared with 1886, although the ravages of the phylloxera have been to a large extent repaired. The largest part of the imports, in quantity 7,756,015 hectolitres, came from Spain, while the imports from Italy declined in consequence of the termination of the reciprocity treaty in March 1888, from 2,701,214 hectolitres in 1887 to 1,135,431 hectolitres, representing a loss of 55,000,000 francs in the Italian trade, which has been transferred to Spain, Portugal, and especially Algeria. Under the head of raw and partly manufactured materials there was a falling off of 45,000,000 francs. The import of raw silk was 207,500,000 francs in value, showing a decline of 67,500,000 francs. Cotton imports exhibit a decline of 44,000,000 francs, while the raw material for the woolen industry, the most important in the country and one in which France leads the world, were valued at 332,500,000 francs, showing only a slight falling off. In the importation of flax, of copper, and of oil seeds and fruits there was a considerable increase in the values. The total imports of manufactured articles were 1,500,000 francs less than in 1887, while the exports under that head were 21,500,000 francs less. The decrease in the exports of woollens amounted to very nearly that figure, while in cotton manufactures there was a decrease of 12,000,000 francs; in jewelry and goldsmith's work, 10,000,000 francs; in metal tools, 8,000,000 francs; in linens, 5,000,000 francs; in apparel, 13,500,000 francs. These losses were made good by the exports of silk goods, which rose to 234,500,000 francs, leather exports amounting to 136,500,000 francs, and increased exports of other manufactured articles.

Three fourths of the French population are devoted to agricultural pursuits. Of the 36,000 communes 27,000 have fewer than 1,000 inhabitants. The rural population in 1889 was estimated at 18,219,000. The land is in the hands of a peasant proprietary, being parceled into 6,000,000 properties, of which 5,000,000 do not exceed 10 hectares. In 1885 and 1887 the Chambers raised the import duties on oats, rye, and barley from 60 centimes to 3 francs, and on March 28, 1889, the duty on rye was increased to 6 francs 60 centimes, and that on rye flour to 8 francs 60 centimes, if imported from European countries; but, if brought direct from extra-European countries, rye continues to pay 3 francs, and rye flour 5 francs. For the protection of stock breeders taxes on animal imports have been imposed, viz., 38 francs on every steer, 20 francs for a cow, 8 francs for a sheep, etc. The railroad system, which has doubled in length since 1869, is to be greatly expanded for the special benefit of the farmers by the adoption of a type of cheap narrow-gauge railroad exhibited by Paul Decauville at the Paris Exposition. The increase in the length of river navigation from 7,300 to 11,855 kilometres since 1870, and in canals from 3,369 to 4,789 kilometres, has been a considerable aid to the farmers in marketing their produce, and still more the completion of the secondary roads, 560,000 kilometres in total length, which has been accomplished by means of a loan of 8,000,000 francs made by the Government to departments and communes in 1888.

The ravages of the phylloxera have reduced

France from the rank of the greatest wine-exporting country in the world to that of a country that does not produce enough for her own requirements. The consumption, formerly unknown, of an artificial infusion of raisins, strengthened with alcohol and of grain and potato spirits, has had a deteriorating effect on the health and morals of the French people. Syndicates have been formed, on the model of those existing in Switzerland and Germany, to combat the phylloxera plague with the aid of a subvention of 1,500,000 francs from the Government. New plantings on devastated lands are relieved from the land tax for the space of four years. The treatment with bisulphuret of carbon necessitates sustaining the vines with strong fertilizers, and is not only a costly process, but it kills many vines as well as the insects, and must be repeated as often as the disease returns. The only effectual remedy (except, where practical, submersion) is found to be the planting of American vine-stocks. Grafts of French varieties on American stocks are absolutely free from phylloxera. Till recently there were laws prohibiting the cultivation of American vines, because, by their importation, the phylloxera was first introduced into France. While resisting perfectly the attacks of the insect, they harbor it, and can communicate it to French vines. Between 1877 and 1887, of 2,346,000 hectares of vineyard there were 400,000 hectares destroyed. There were in 1889 166,517 hectares planted with American vines. Many nurseries for their cultivation have been established with aid from the State.

The production of silk cocoons in 1888 was 9,549,906 kilogrammes, as compared with 8,269,862 kilogrammes two years before, the number of silk culturists having increased in the same time from 135,706 to 142,711. The domestic production of sugar in 1887 was 420,870,000 kilogrammes, and the importation of sugar 153,569,888 kilogrammes. The export of raw sugar, which fell to 1,500,000 francs in 1887, rose again to 14,500,000 francs in 1888, while the export of refined sugar declined from 57,000,000 francs to 43,750,000 francs, and the importation of foreign sugar increased. There were 36,665,063 acres sown to grain crops in 1885. The product of wheat in 1887 was 322,000,000 bushels, which was insufficient to supply the home requirements. Rye and buckwheat are the only cereals raised for export. In 1888 there were 4,555,040 acres planted to vineyards, yielding 214,878,000 gallons. The production of cider in that year was 214,878,000 gallons.

The product of coal in 1887 was 21,403,049 tons; of pig iron, 1,610,851 tons; of wrought iron, 774,260 tons; of steel, 478,473 tons. The product of the deep-sea fisheries, employing 23,877 vessels, of 160,299 tons, manned by 85,915 fishermen, was valued in 1885 at 93,500,000 francs.

Navigation.—The number of vessels entered at the ports of France in 1887 was 98,131; their aggregate dimensions, 19,128,599 tons. Of these 80,962, of 17,659,229 tons, arrived with cargoes, and 17,169 of 1,469,370 tons in ballast. Of the total number 75,746, and of the total tonnage 10,415,863, sailed under the French flag, while 22,385 vessels, of 8,712,736 tons, belonged to other nations. Of the French vessels 8,696, of 4,770,858 tons, were engaged in the foreign trade,

and 67,050, of 5,645,005 tons in the coasting trade. The total number of vessels cleared was 99,954, of 19,924,968 tons, comprising 75,150 vessels, of 14,250,124 tons with cargoes, and 24,804, of 5,674,844 tons in ballast, and divided in respect to nationality into 76,985 French vessels, of 10,926,029 tons, of which 9,935, of 5,281,024 tons were employed in ocean commerce, and 22,969 foreign vessels, of 8,998,939 tons.

The French merchant marine on Jan. 1, 1888, numbered 14,253 sailing vessels, of 465,873 tons, and 984 steamers, of 506,652 tons. The crews of the sailing vessels numbered 71,008 men, those of the steamers, 13,147. Of the sailing vessels 363, of 41,770 tons, navigate the adjacent seas, while 209, of 315,133 tons, are engaged in long voyages. Of the steamers 234, of 164,016 tons, were engaged in European trade, and 209, of 315,133 tons, in ocean navigation, the rest being employed in the coasting trade, fisheries, or port service.

Railroads.—The French network of railroads in June, 1888, comprised 32,063 kilometres, besides 2,217 kilometres of local lines and 3,174 kilometres not yet completed. The State, while owning only 2,598 kilometres, has advanced capital and guaranteed interest to the companies, the total subsidies having amounted in 1883 to 809,931,473 francs. The gross receipts of the railroads for 1887 were 1,031,571,272 francs.

Telegraphs.—The length of the telegraph lines in the beginning of 1888 was 86,846 kilometres, with 272,946 kilometres of wires. The number of internal messages transmitted during 1887 was 27,269,957; foreign, 5,583,915.

The Post-Office.—The number of letters and postal cards forwarded in 1886 was 693,162,187; of newspapers, 799,534,386; of samples, circulars, etc., 433,024,173. The number of money orders was 21,494,029; the total value, 669,838,286 francs. The postal and telegraph receipts amounted to 169,446,875 francs, and the expenses to 134,962,687 francs.

Election of Boulanger in Paris.—The month of January was a period of great political excitement. The death of the deputy Hude left vacant one of the seats for the Department of the Seine. Gen. Boulanger, who had been triumphantly elected in the Department of the Nord, which he represented in the Chamber, and several other departments, resigned his mandate in order to measure his strength with the Republican party in the capital. His programme was the abolition of the parliamentary republic by a constituent assembly. He did not define what kind of republic should be constituted in its place, and it was charged that he aimed at a dictatorship. His party was made up of all the enemies of the republic, especially politicians and journalists who were attached to parties that seemed hopelessly excluded from power. The Monarchists and Clericals and the Blanquist and Anarchist sections of the Socialists allied themselves with Boulanger because he threatened to overthrow the existing republic. He was supported in this contest, further, by many capitalists and business men, not opponents of republicanism, who thought that their interests were menaced by the Radicals, who were in control of the Government. The Republicans, divided into irreconcilable factions,

had no strong candidate to oppose to Boulanger, who promised to satisfy the discontented of all classes, even the shareholders of the Panama Canal, whose losses the Government had refused to reimburse.

The Republican caucus nominated M. Jacques, a municipal councilor of Radical and communistic principles. Gen. Boulanger, in a manifesto addressed to the electors of the Seine, said that he desired a republic that should not be the prey of ambition and avarice, that the fatherland is the inheritance of all, and he would save it from being made the booty of a few. The electoral canvass was animated beyond precedent. Boulanger was supplied with unlimited money by his Royalist allies. The custom of affixing posters in the public streets and other electioneering devices were carried to extremes. Rochefort and Lissagaray wounded each other in a duel, and other encounters in the dueling field took place almost daily.

The election took place on Jan. 27. Gen. Boulanger was elected by more than 80,000 plurality, receiving 245,236 votes, the highest number ever cast for a candidate, except when Lockroy and Floquet were elected in 1885. The victorious candidate sent out an address to his electors in which he declared the National Republican party, of which the principles are the probity of functionaries and the reality of universal suffrage, to be firmly established; that the Chamber that had opposed it could not escape dissolution; that the country would be delivered from the parasites that not only devour, but dishonor it; and that the republic is now open to all true Frenchmen.

Gen. Boulanger had previously carried only Royalist and Bonapartist departments. The Boulangists and Monarchists in the Chamber characterized the ministers as usurpers for retaining their places after the people of Paris had condemned them. Radical deputies called for measures against Boulangism. On Jan. 31 M. Floquet submitted a project of law restoring *scrutin d'arrondissement*, justifying it on the ground that the Boulangists, aided by a financial combination, had imported new methods into political contests, seeking to influence the electorate, not by discussion, but by hired agents, house-to-house solicitation, and profuse expenditure on placards and colportage. The Premier, in introducing this measure, said that the ministry could not go on without a majority sufficient to afford prospect of a secure tenure, and in response to his demand the Chamber adopted a vote of confidence by 300 votes to 240. On Feb. 12 it voted in favor of *scrutin d'arrondissement* by a party vote of the entire left against the Monarchist parties and the Boulangist group, the vote being 268 to 222.

Fall of the Floquet Cabinet.—The Cabinet of "Republican concentration," headed by the Radical Floquet, was sustained after the election of Boulanger only because a Clemenceau Cabinet or an Opportunist Cabinet under Ferry or Simon were alike impossible. The difficulty of finding a successor impelled Floquet, instead of resigning at once, to come before the chambers with a programme for combating Boulangism, of which the restoration of single-ticket voting formed part. As M. Ferrouillat was unwill-

ing to invoke the laws against Gen. Boulanger and his partisans, he gave up his place to the Radical deputy M. Guyot-Dessaigne, whose appointment was ridiculed by all the parties because he had prosecuted Republicans as a magistrate under the empire and recently had entertained close relations with Gen. Boulanger. Previous to his appointment he had presented to M. Floquet a plan for applying existing statutes against Boulangism and for supplementing them with new legislation.

The Floquet ministry was pledged to the revision of the Constitution, and after the Paris election the Radicals pressed for immediate revision in order to maintain their ground against the Boulangists in the constituencies. The election bill was given precedence at the desire of the Opportunists. All political parties, with the exception of the Opportunists and Moderate Republicans, had declared for revision. The Extreme Left, like the Monarchists and the Boulangists, was in favor of a constituent assembly, hoping that Socialism would come to the front, while the Right calculated that Boulangist Caesarism would carry all before it in a *plébiscite*, but would be only transitory, leading to the restoration of the Bourbon monarchy or of the empire. The Government programme comprised a partial revision by the two chambers sitting in Congress at Versailles. As one of the leaders of the Radical party, Floquet decided to make his revision bill a Cabinet question, although scarcely expecting to receive the votes necessary for a majority, which would have to come either from the Opportunists or the Monarchists. It was nothing more than a party manoeuvre because even if it passed the Chamber, the Moderate Republican majority in the Senate would certainly reject immediate revision in any form. There were as many kinds of revision as there were parties in the Chamber. The Boulangists desired to elect the President by universal suffrage and endow him with absolute power. The Monarchist parties accepted this idea as a stepping-stone to the different forms of monarchy that they advocated. The Radicals wished to annul the powers of the President and the Senate, and make the Chamber absolute; and the Opportunists were in favor of a revision that would strengthen the hands of the Senate. In order to extricate the Government from the difficulty an Independent Radical, Count Douville-Maillefeu, came forward with an argument that the present Chamber was morally incompetent to deal with revision, which belonged to one elected under the *scrutin d'arrondissement*, and on this he based a motion that the question be indefinitely postponed. After rejecting a resolution of the Right in favor of dissolution by 373 to 173 votes, the Chamber on Feb. 14 adopted the motion to postpone revision by 307 votes against 218, the majority being composed of a large part of the Opportunists, a few Radicals, the Boulangists, and the Conservatives. The ministry would not embrace the unexpected chance to retain office. Seizing the opportunity to retire honorably with two thirds of the Republican party behind him, Floquet, after consultation with his colleagues, announced that, since he could not keep his promise to test the sense of the Chamber on his scheme of revision, he would

tender his resignation. Gen. Boulanger, in the name of the National Republican party, sent out a manifesto qualifying as "mere comedy" the Floquet revision proposals, "stricken in advance with barrenness," which, if voted, would have given the death-blow to the national revision scheme. It was the Monarchists who made part of the majority of 268 to 237 that on March 30, 1888, declared revision urgent, who now voted in the contrary sense in order to precipitate a crisis, just as in 1885 they had voted for *scrutin de liste*, and in 1889 for single districts.

The Tirard Cabinet.—The Radicals and the Opportunists agreed in recognizing Boulanger's plebiscitary movement as a danger to the republic, but the former laid the blame on the timid and insincere attitude of the Opportunists, who, on their part, charged it entirely to the aggressive, intolerant, and subversive tendencies of the Radical faction. President Carnot was anxious to secure another Cabinet of concentration; but M. Méline, President of the Chamber, who was charged with the task, could not get Moderates and Radicals to serve together. The President then commissioned M. Tirard to form a cabinet of affairs, an "Exhibition Cabinet," as it was called, which should undertake merely to carry through the budget and supervise the Centennial Exhibition, deferring political questions till after the elections. Men of political eminence accepted portfolios that conferred distinction without compromising their political position. M. Tirard, who had preceded M. Floquet as Premier, serving from February to April, 1888, took the portfolio of Commerce for the purpose of stamping the ministry with the character that it was intended to bear. The list included three other ex-premiers. The only member of the late Cabinet to be retained was M. de Freycinet, whose versatile talents never shone more conspicuously than in his administration of the ministry which in this Cabinet was the most important of all, although his first appointment had offended the army and surprised every one. The Cabinet, which was constituted on Feb. 21, was made up of the following members: President of the Council and Minister of Commerce and Agriculture, M. Tirard; Minister of the Interior, M. Constans; Minister of War, M. de Freycinet; Minister of Finance, M. M. Rouvier; Minister of Justice, M. Thévenet; Minister of Marine and the Colonies, Admiral Jaurès who died on March 13, and was succeeded by his predecessor in the office, Admiral Krantz; Minister of Education, M. Fallières; Minister of Public Works, M. Yves Guyot; Minister of Agriculture, M. Faye. M. de Courcel and M. Decrais, Ambassador at Vienna, each declined to enter the Cabinet as Minister of Foreign Affairs, and it was not till the evening of the 22d that a minister was found in the person of M. Spuller, who was Under-Secretary of State for Foreign Affairs in the great ministry of Gambetta, and subsequently Minister of Education under M. Rouvier. Nearly all the new ministers had held Cabinet posts before. The most varied shades of republicanism were represented, Yves Guyot belonging to the Extreme Left, while Rouvier and Constans were prominent members of the Moderate Republican party in the Chamber. The union of the Left or Opportunists distinct-

ly predominated. During the crisis the President had been urged to select a Cabinet from men outside of Parliament; yet the ministers were all taken from the chambers, six from the House of Deputies and four from the Senate. The Radicals were not pleased with its composition, especially since it was understood to have the privilege of presiding over the general elections, including the right of dissolution in case of a defeat by an adverse vote before the end of the parliamentary period. Yet they were not likely to find an opportunity favorable for overturning it by a coalition vote with the Monarchists, since to it was confided also the duty of defending existing institutions against anti-Republican schemes, and they could only demand that vigorous and effective measures should be taken to crush Boulangism. The ministerial declaration set forth as the principal tasks of the ministry the voting of the budget; assurance of the success of the Universal Exposition by a comprehensive, tolerant, and prudent policy; the passage of the military bill and other important laws under discussion; and, chief of all, the defense and confirmation of the rule of peace, justice, and progress that the country chose in founding the Republic. "Faithful to the spirit of free institutions, all our efforts shall tend to this, that France shall be consulted when in full possession of herself, in the calm of a period of peace and concord. To this work of necessary pacification we shall conduct you for the higher interests of the country. The success of this policy will depend on our firmness and vigilance, on which you can count. We are determined to shield with our responsibility officials devoted to their duties, and we shall be severe judges of faults and delinquencies. As regards our vigilance, we consider it an imperative duty to take resolute measures to assure the maintenance of the legal order and respect for the republic, unmasking and repressing, if need be, the enterprises of factious persons." The first act of the ministry was to give notice by a dispatch of the Minister of the Interior that the syndical chambers of workingmen, who had announced their intention to present themselves in a body on Feb. 24 at the Ministry of the Interior in Paris and at the prefectures in other cities to demand a response to socialistic claims presented on Feb. 10, would not be received, and that any manifestations in the streets would be checked by the police. M. Constans, who had proved his energy of character by expelling the monks when Minister of the Interior before, and more recently as Governor of Indo-China, dismissed M. Numa Gilly from the mayoralty of Nîmes, whom M. Floquet had dismissed once before, but had not ventured to disturb after his re-election. He was a Boulangist Radical deputy who had said that there were twenty Wilsons on the budget committee, and had published a pamphlet bearing the title "Mes Dossiers" full of libels of the same tenor. Numa Gilly was subsequently tried for the publication, and sentenced to six months' imprisonment, fined, and, with the printers and publishers, who received lesser sentences, was ordered to pay civil damages.

Suppression of the League of Patriots.—The Sagallo incident (see *ABYSSINIA*) was welcomed as offering a chance to deery the Govern-

ment by the Boulangist press, which denounced the shelling of the Russians as an unpatriotic and cowardly act of subservience to Italy. The executive committee of the League of Patriots, now become a Boulangist organization, published a declaration in the name of the 240,000 members claimed for it, expressing indignation at the indescribable proceeding of a Parliamentary Government disowned by all patriots, which had not shrunk from shedding Russian blood by French hands; sending to the great allied nation assurances of heartfelt sorrow, sincere regret, and fraternal devotion; and calling for subscriptions for the families of the dead and wounded. This manifesto the Government resolved to treat as an act calculated to lead to a declaration of war, and by virtue of a law provided for such cases the assembly room of the League was searched on Feb. 27, and proceedings were begun against the signers of the call for subscriptions, MM. Déroulède and Richard. The license of the League was annulled by the police authorities because documents that fell into the hands of the police showed that it had a secret organization, and thus had violated the statutes. The Chamber approved the energy of the Government in enforcing the laws, by a vote of 339 against 195 on an interpellation of M. Laguerre, who complained that he was not also included in the prosecution as a signer of the manifesto. The ministers upheld their predecessors, who were responsible for the bombardment of Sagallo, by saying that France could not suffer an adventurer to defy her, and the Chamber passed a unanimous resolution expressing sympathy for Russia.

Anti-Boulangist Measures.—M. René Lafon, a Radical, brought in a bill that was adopted by the Government to check the dictatorial intrigues of a perpetual and universal candidate, who would not sit in the Chamber, nor take part in its deliberations, but resigned and stood for fresh constituencies with the object of attaining supreme power. The bill, which was passed, provides that no one can be a candidate in more than two constituencies in a general election, which he must designate beforehand at the prefectures of the departments interested. No deputy can, while a Parliament exists, be a candidate unless he resigns his seat beforehand, and then only in the same electoral district. Ballots cast for a candidate whose election would be invalid under the act are thrown out, and canvassing, printing or distributing ballots or circulars, and putting up bills for such a candidate are made punishable offenses. A bill to give police courts jurisdiction in cases of libel against public functionaries, which otherwise could be tried only before a jury, was passed by the Senate, but was rejected by the Chamber, although the Government strenuously supported it by 306 votes against 236, the majority consisting of the Reactionaries and the Radicals. An act, intended to put an end to the political cries of Boulangist newsmen, forbids any cries besides the name and price of a newspaper and an indication of its contents.

The Minister of War on March 7 issued a circular calling the attention of corps commanders to an old statute forbidding men in the army to join associations that had not the express ap-

proval of the minister. The Boulangists failed in their efforts to secure as an associate the Lorrainer Jean D. Antoine, who had resigned his seat in the German Reichstag, and come to France to preach the *revanche*. The Government on March 7 revoked the decree of exile that on July 13, 1886, had been pronounced against the Duc d'Aumale in consequence of his letter to the then President, Jules Grévy, protesting against his dismissal from the army. Although Boulanger, when Minister of War, had approved the measures against the princes, he now found fault with the Government for the same exceptional laws, and especially for the banishment of the Duc d'Aumale, which was a disciplinary act for which the general was himself responsible. The Duc d'Aumale had meanwhile presented the park and castle of Chantilly and his artistic collections to the French nation, and had openly disapproved the alliance of his nephew the Count of Paris with Boulanger. He returned to Paris on March 11. The Chamber on March 14 voted permission to prosecute Deputies Turquet, Laisant, and Laguerre, of the League of Patriots, on the charge of belonging to a secret society, and the Senate gave a like permission for proceedings against Senator Naquet. The charge of exposing the state to a declaration of war was abandoned. House searches in Paris and the provinces brought to light documents that proved that the League was able to call out at any moment 100,000 well-armed young men, mostly members of rifle clubs. The League was founded in 1882 for the purpose of developing the military spirit and training volunteer soldiers. Its ultimate aim was the redemption of Alsace and Lorraine. In 1887 it was converted into a Boulangist political association, and in April, 1888, many of its members left it on that account. At that time a manifesto was issued protesting against the "usurping" Constitution of 1875, and defining as the chief duty of the League "the deliverance of France from the oligarchy that is debasing and ruining her." The League took an important part in the election of General Boulanger in January, disposing of a large amount of money. Soon afterward an organization was perfected that would enable a password to be circulated, and the whole armed strength of the association in Paris to be summoned in two hours to aid a revolutionary enterprise. By a law of 1848 secret societies are forbidden, and by one dating from 1834 every society of more than twenty members holding stated meetings is illegal unless it has the sanction of the authorities. The trial of the members of the executive committee of the League was concluded on April 6. The charge of belonging to a secret society was not upheld by the judgment, and they were simply fined and mulcted in costs for maintaining an unauthorized association.

The Government decided to arrest and prosecute General Boulanger for seditious conspiracy. A difficulty was encountered at the start in the refusal of the Procureur-Général, M. Bouchez, to take part in such proceedings. He was removed from his office, and Advocate-General Quesnay de Beaurepaire was appointed as his successor on March 31. It was decided to arraign Boulanger before the Senate, constituted into a

special high court, to try him on the charge of an attempt against the safety of the state in conformity with a clause in the Constitutional act of Feb. 24, 1875, which provides that the Senate may meet as a court of justice to try impeachments made by the Chamber of Deputies against the President of the republic or against ministers for the commission of crimes while in office, or to try any person charged with menacing the security of the state by a decree of the Council of Ministers. The senate had never been called upon to exercise this judicial function. Before any steps were taken by the Government it adopted a bill on March 29 settling the modes of procedure in accordance with the recommendations of a committee that had made its report early in the month. The act provides that when the Senate is summoned by the President to try a citizen who is accused of a treasonable enterprise, it may at any time change its place of meeting from one city to another. The prosecuting attorney and his assistants must be designated in the President's decree, while the secretary of the presidency of the Senate will act as clerk. The first act of the tribunal is to determine its competency to adjudicate on the facts set forth in the complaint. The President of the Senate will act as investigating magistrate, choosing two or more Senators to be his associates, without whose concurrence he has not the right to discharge the prisoner. At the close of the inquisition he must make a report to the Senate, which must decide by a majority vote whether it will release the accused, commit him for trial before another tribunal, or proceed to the trial. If the last is the case, the accused is notified, and the Senate meets again in order to proceed to the trial in public session. After receiving the testimony and the pleas of the prosecution and the defense, the court retires in order to consult as to the question of guilt and the measure of punishment. The judgment is announced in open session.

Legislation.—Before the change of ministers the Chamber passed a bill for the protection of women and children in factories, containing among other provisions for their health and safety one requiring employers to give them one day of rest in each week. The majority refused to designate Sunday as a uniform holiday, as was proposed by the Clericals. The election of General Cluseret, the Communist, as deputy for the Var was contested on the ground that he was an American citizen, but was allowed on his submitting proof that he had not been naturalized in the United States. The budget committee elected on Feb. 26 differed from the committees for several years preceding in that the Moderates were in the majority, instead of the Radicals, and some of the seats were given to Reactionaries. The Government adopted a bill that had been offered by M. Yves Guyot as a private member permitting municipalities that so desired to abolish *octrois*, a troublesome method of taxation that bears severely on the poor. A bill to secure secrecy of the ballot by the use of envelopes and the erection of screens at polling-places was presented by M. Simyan, who said that he had seen artisans in tears at being compelled by their employers to vote against their consciences. A law providing for the responsibility of em-

ployers for accidents and the insurance of laborers, which passed the Chamber by a large majority, was much criticised in the Senate, where it was in charge of M. Tolain, Senator of the Seine Department, himself a workingman and a Socialist. The law of April 27, 1889, sanctions cremation and regulates the different methods of burial. A new law on nationality declares that the child of a foreigner who was himself born in France is French when born on French soil; and that every individual who was born in France and is domiciled in France at the time of majority is a French citizen unless he elects the nationality of his parents, proving by properly attested documents that they were foreigners, and also, if there is occasion to do so, that he has complied with the laws of his country in respect to military service. A Panama Canal bill was enacted to enable the liquidator to raise money to keep the works going for six months, while the promoters of a new company sent out experts to report on the prospects of the enterprise. The telephones throughout France were taken possession of by the Government on Sept. 1 against the will of the owners, who objected strongly to the law of expropriation.

Flight of Boulanger.—General Boulanger avoided arrest by fleeing to Brussels in the night of April 1. From there he sent out a manifesto denouncing the "executioners and scavengers retaining possession of power in defiance of the public conscience," who had arraigned him before an exceptional tribunal, composed of persons "blinded by political passions, mad hatreds, and the sense of their unpopularity." Duty forbade him, he said, to lend himself to such arbitrary proceedings, though he was ready to reply to the accusations before a jury of his countrymen. He would, therefore, while working incessantly for the enfranchisement of his fellow-citizens from those who have "corrupted, exploited, and ruined" the country, await in that land of liberty the time when the general elections had made France "habitable, honest, and free." General Boulanger fled by the advice of M. Naquet and his associates of the League of Patriots and that of M. Rochefort, who had escaped arrest as an accomplice by seeking Belgian soil. M. Dillon likewise took refuge in Belgium. Prominent members of the Boulangist party regarded the flight of their leader as an error and an act of cowardice. M. Thiébaud and M. Michelin, deputy for the Seine, at once resigned from the committee of the National Republican party. On April 7 the fugitive had an interview with Prince Victor Napoleon, having previously held a consultation with M. Rochefort. The Boulangist committee transferred its sittings from Paris to General Boulanger's hotel in Brussels. The Belgian Government, in response to French diplomatic representations, admonished Gen. Boulanger that he would not be suffered to carry on an agitation against the Government of the Republic, and on April 20 sent him a hint to leave the country. On the 24th he departed with his adherents for London.

Trial of Boulanger.—Application to the Chamber for leave to prosecute Gen. Boulanger was presented by the Minister of Justice on April 4. The indictment of the Procureur-Général reviewed the acts of the general from the time of

the Commune, when he dispatched from his regiment a boastful address to the National Assembly. Obtaining the rank of general by the favor of the Duc d'Aumale, he profited by his mission to the United States to form financial relations which he had since utilized. While director of the infantry service at the Ministry of War, he established relations with politicians of all parties. He was recalled from his post as commander of the army of occupation in Tunis on account of his intrigues and sensational movements, and from that moment assumed the part of a political leader, holding secret consultations with his followers, seeking support in the press and circulating his biographies and pictures. Called to the head of the Ministry of War, he claimed the credit of reforms effected by his predecessor, courted noisy demonstrations, and procured the insertion of articles in foreign newspapers styling him the "organizer of revenge." When dismissed from office, he caused to be circulated petitions in his favor, and when ordered to the command of the Thirteenth Corps at Clermont-Ferrand, he arranged with his followers a plan of campaign for setting up a dictatorship, organized an attack against the Government with the Bonapartists, tried to corrupt the army, especially the Paris garrison, and in January, 1888, began a plebiscitary campaign, putting himself forward as a candidate, though ineligible, and paying secret visits to Paris. Placed on the retired list, and finally cashiered for serious offenses against discipline, he openly posed as a pretender, and entered into negotiations with Prince Victor Bonaparte and the Count of Paris to destroy the republic, receiving subsidies to carry out the plot. A military conspiracy was concocted, the object of which was to provoke an insurrection on the occasion of the review of July 14, 1888, and a mobilization of the Patriotic League was arranged to take place in February, 1889. Gen. Boulanger replied to this document with another manifesto, in which he argued that if his political acts prior to his becoming minister were culpable, those who called him to the office and his colleagues were accomplices.

After a stormy scene, the Chamber sanctioned the prosecution by a party vote of 353 to 192. On April 8 a presidential decree was read in the Senate convening it as a high court of justice to decide as to the facts of attempts against the safety of the state laid to the charge of Boulanger and others. The law of procedure was approved by the Chamber, against the protests of the Right, on the 9th, and on the 12th the high court was organized. The committee to investigate the charges was to have consisted of three members taken from the Republican Left, three from the Republican Union, two from the Left Center, and one from the Right; but when it was appointed the members were all Republicans, the Reactionaries refusing the seat that was offered to the Duc d'Audriffet-Pasquier. The complaint included Georges Ernest Boulanger as principal and Arthur Dillon and Victor Henri de Rochefort as accomplices. The examining committee cited many witnesses to give evidence with regard to the alleged subornation of the army, the source of the Boulangist funds, and other matters. The so-called "historical night" occupied a good deal of their attention. That was the night of Dec.

1, 1887, when Clémenceau, Dreyfus, Lockroy, Granet, Laisant, Andrieux, Deroulède, Boulanger, and other Radicals met at the house of Laguerre to consider a plan for preventing the election of Jules Ferry as President of the republic. The plan chiefly discussed was said to have been the legal one of inducing President Grévy to withdraw his proffered resignation and to summon a Radical Cabinet. But violent resistance was supposed to have been suggested too, and Boulanger was reported to have said: "The army? Well, that is my affair. The troops will remain in their barracks."

The committee found a *prima facie* case against General Boulanger, and ordered him to appear before the high court to answer to the charges: 1, of making a felonious attempt against the safety of the state; 2, of a conspiracy; 3, of embezzling 252,000 francs. Count Dillon and Henri Rochefort were also summoned as accessories to the first two offenses. The public prosecutor reserved the right to prosecute other charges of embezzlement and peculation before a court-martial. Among the various allegations contained in the act of indictment were that the general employed disreputable secret agents of both sexes; that he took bribes from army contractors; that he had forty-four different portraits printed, some of them in Hamburg; that he subsidized friendly newspapers while Minister of War to the proved amount of 242,693 francs; that he abstracted 279,000 francs from the secret-service fund, and lent 140,000 francs to the Cercle Militaire, which he made a political instrument; that he connived at a plot to attack the Elysée Palace on July 14, 1887, which was revived in the attempted riots in his favor in November of the same year; and that since his fall from office, as chief of a coalition of all the foes of the republic, he had received 1,275 money remittances.

General Boulanger made a statement in which he claimed to have armed the line with the Lebel rifle, and by a secret order obtained from the President at the time of the Schnäbele incident to have equipped 600,000 men of the territorial army, intending to arm them with the discarded Gras rifles. He blamed his successor for revealing this augmentation of the French army, and thus impelling the German Government to pass a military law adding a like number to the German army. The Government organs printed a contradiction based on official records, which showed that there were not 25,000 Lebel rifles finished when he left the ministry, and that his boast of increasing the armed force by 600,000 men or by 900,000 men, as he had previously asserted, rested merely on the fact that he had ordered 170,000 uniforms for the territorial troops, and had no relation to the Schnäbele incident, as it happened some months before that.

A copy of the depositions taken before the senatorial committee was stolen from the printing-house, and parts of it were published in a Boulangerist newspaper, the "Cocarde." The counts of the Procureur-Général's indictment were known some weeks before, but the general did not think it necessary to reply to them till now, when a "fortunate accident," as he termed the theft, had placed him in possession of the evidence on which they were based, and the results of the departmental elections seemed to

show the necessity of explanations. On Aug. 6 he issued a long document addressed to "the people, my sole judge." He appealed to all honest men, and not to the judges of the high court, whose competency and impartiality he did not acknowledge. He should not have answered to the charge of attempting to subvert the Government, which the public had dismissed with contempt; but, when attacked in respect to his military honor and his honesty, he felt bound to confound his calumniators. The charge of taking bribes for recommending military stores and for purchasing American machinery for making rifles, he meets by discrediting some of the witnesses. In explaining what he had done with some of the moneys diverted from the secret service and reserve funds he made curious revelations regarding an information service that he established, considering it in some fashion an instrument of national defense. This embraced spies of various ranks and conditions in Berlin, Rome, and other capitals, many of them journalists. He acknowledged supporting with secret-service money "L'Avenir National," an Anarchist journal, giving the reason that he wished to have agents who could not only give information concerning the Socialists of Germany, but could influence and incite them to treason. The subsidy was withdrawn when he found that the paper could not render the services expected of it. He avowed also a trick by means of which a military *attaché* had his attention diverted while his letters were examined and a list of German spies was copied. This remarkable confession of practices dangerous to peace and dishonorable, and the indelicate revelation of official secrets, instead of clearing him, excited indignation and contempt.

The Senate met as a high court of justice on Aug. 8. The argument of M. de Beaurepaire was based on 1,200 documents and several volumes of oral testimony. In regard to the charges of embezzlement and malversation it was shown that General Boulanger had abstracted secret-service money to pay his father's debts and furnish luxurious apartments for himself; that 242,000 francs was paid from the same source to newspaper writers for the personal glorification of Boulanger and the furtherance of his seditious objects; that with money taken from the reserve fund for the national defense he had founded the Military Circle as a political instrument, and had carried off 30,000 francs in cash when leaving the ministry. A seditious campaign in behalf of Boulanger was at that time organized by Rochefort, and a telegraphic correspondence with Boulanger at Clermont was carried on in cipher through the intermediation of Dillon. Among the papers seized were documents proving an understanding with Prince Victor and the Bonapartists, who accepted Boulanger as the instrument of a *coup d'état*, "rendered necessary by the Constitution that the Orleanists have made necessary for us." Rochefort represented Boulanger's alliance with the commune, and Morphy, Boulanger's secretary, of the alliance with the Anarchists. There was evidence tending to show that Boulanger sought from Prince Bismarck sanction for a *coup d'état*; for M. de Cyon, who stood very close to the general, requested Bleichröder, the Berlin banker, to ex-

plain to the German Chancellor that the object was to establish a consular republic. In Germany Boulanger's accession to power was desired in the event of a war with France. In England Boulanger was represented to be the agent of a pretender. Treasonable letters from officers proved incontestably that Boulanger had attempted to introduce the idea of a *coup d'état* into the army. The Procureur-Général showed that at the Lyons railway station and at other Boulangerist demonstrations in Paris organized attempts were made to begin an insurrection. Boulanger possessed no private means, and yet his personal and political expenses amounted to millions of francs annually. His followers publicly declared that he received contributions from abroad. The trial was concluded on Aug. 14. In accordance with the law of procedure, the members of the commission of indictment, as well as Cabinet ministers, were disqualified from acting as judges. By the instructions of the Court of Paris, 51 members of the Right absented themselves, declining to take part in the proceedings. There were also two Republicans who had been antagonists of Boulanger, and for that reason declined to take part in the trial, and questioned the right of the Senate to judge him. The court decided by 100 votes against 96 that the evidence was insufficient to prove the presence of General Boulanger in Paris on the night of Dec. 2, 1887. With regard to the attempt against the state on July 9 and 11, 1888, Dillon was found guilty by 124 votes against 9, and Rochefort by 183 against 18 votes. Several Senators denied the competency of the court to consider the charge of embezzlement, as that was an offense at common law. The court finally adjudged General Boulanger guilty of the crime of embezzlement by 195 votes against 5, there being 10 abstentions. There was no defense allowable in the absence of the accused, and in inflicting the extreme penalty of the law the President followed the precedents in cases of conviction in *contumaciam*. The three defendants, adjudged by default to have been guilty of conspiracy, of treasonable attempts against the state, and of misappropriation and malversation of public funds, were sentenced to transportation for life to a fortified place. The sentence rendered General Boulanger ineligible both for the Councils General to which he had been elected and for the Chamber. The number of officers in the active army against whom compromising facts came out during the trial was 59. Some were cashiered, and others subjected to disciplinary punishment, as well as 22 officers in the territorial army, 21 non-commissioned officers, and 8 Republican guards. General Boulanger and his two companies in exile addressed, on Aug. 16, a protest to "honest people," characterizing the judgment of the high court as a result of a bargain between the majority of a dishonored Chamber and the majority of a Senate forever condemned by the country, which by its verdict has purchased its escape from suppression by the Radical revisionists. "Universal suffrage lying prostrate before limited suffrage, the security of citizens and the honor of the nation in the hands of the accomplices of Ferry," such, they say, is the result of the contract; but not for long would "this orgie of absolutism, calumny, and

prevarication" last, for they had confidence in the steadfastness of the electoral body, and appealed to it, "from falsehood to truth, from the dictatorship of mud to the honest republic." On Sept. 6, General Boulanger sent a letter to the President of the Council, M. Tirard, demanding a new trial before a court-martial or the Paris Court of Appeals.

The General Election.—The cantonal elections for the department councils, in which multiple candidatures were not prohibited, gave General Boulanger an opportunity to test his popular strength. He issued a manifesto from London, inveighing against the "band of swindlers" at the head of the Government. The result of the elections, which were held on July 28, indicated that his popularity had vanished and that the coalition of parties that had secured his electoral successes was dissolved. The Conservatives set up their own candidates, and he was unable to select more than 80 cantons of the 1,400 into which France is divided where the chances warranted his formal nomination. Of these 80 only 12 elected him as a departmental councilor. On July 31 he issued another manifesto in which he described his new plebiscitary attempt as a protest against the "ignominious law prohibiting multiple candidatures, which places universal suffrage in tutelage," and attributed his defeat to "local rivalries, petty parochial ambitions, and paltry personages." The Conservatives gained about 50 seats in the departmental councils.

In June the two Right parties issued jointly a declamatory election manifesto accusing the Republic of having pandered to criminal passions in driving the monks from their dwellings, magistrates from their seats, and the princes from the army and their country, with having added 600,000,000 francs annually to the debt, and with being in revolt against universal suffrage, proscribing its deputies and relegating them to special tribunals "which make fear and hatred stand for justice."

A manifesto of the Count of Paris, dated Aug. 31, proclaimed the compact with the Boulangerists, admonishing Royalist electors, where they had no candidates, to have regard to the necessities of the conflict, and not to "treat as enemies those who are fighting the same adversaries." He calls for the repeal of the constitutional law of 1884 "imprisoning France in the republic," thus preparing the way for the accession of a system which "re-establishes religious peace and gives stability to our institutions and calmness in the exercise of liberty to our democratic society." Prince Victor Bonaparte likewise put forth an electoral declaration, in which he spoke of restoring free expression to the will of the country, honor to the army, and an upright management of public affairs, and called for a *plébiscite*.

The Government sent a circular to the bishops warning them of the duty of strict neutrality imposed on the clergy by the concordat and French law in political matters, and threatening to revoke the pay of every ecclesiastic who interferes in the elections. The bishops entered on the political contest at once by publishing a reply to the circular of the Minister of Justice, denying his authority to restrain them from exer-

eising all the political rights of French citizens. Many of the priests took an active part in the electoral struggle, and preached electioneering sermons, in consequence of which the stipends of 55 priests were suspended.

The general election was held on Sept. 22. The polling in Paris was as quiet as at any previous election. General Boulanger had notified his candidature in the Socialist Radical district of Montmartre, but the Prefect declared it illegal. Rochefort stood for the Belleville circumscription. For the 42 seats of Paris there were 210 contestants, and for the 576 in France more than 2,000. All the members of the old Chamber except 95 were candidates for re-election. In the elections from the time of the Royalist conspiracy till 1885 there was a steady Republican gain. In 1876 there were 4,023,153 Republican and 3,202,233 Conservative voters; in 1877, 4,367,202 Republicans and 3,577,882 Conservatives; in 1881, 5,128,442 Republicans and 1,789,767 Conservatives. The Ferry education bill of 1882 and the Tonquin expedition aroused much opposition to the Government in the country, by which the Conservatives benefited in the election of 1885. They obtained the advantage also of the *scrutin de liste* that went into operation in that year. The popular vote was 3,565,412 Republicans to 3,147,129 Conservatives, indicating a large proportion of abstentions. Of the 395 members of the Chamber the Republicans elected 390, thus retaining a large though greatly diminished majority, but it was divided, the Radicals who were a comparatively small group before, being now almost as numerous as the Moderates. Through the irreconcilable policies of the two sections and the tactics of the Conservatives, who voted with either side to overturn the ministry, came the many changes of government that brought discredit on the Chamber. The election of 1889 resulted in a Republican majority in which the Moderate Republicans have regained a decided preponderance. The Boulangist candidates in general, most of whom were persons of small or of damaged reputations, failed except in Paris. General Boulanger received 8,000 votes, but his election was annulled, and the seat was given to the Socialist Joffrin, who received 5,000, an act denounced by Boulanger in an address to the electors as unparalleled "brigandage." The Republicans polled 259,615 votes in Paris, the Boulangists 201,962, and the Conservatives 33,534. M. Rochefort's 3,800 votes in Belleville were thrown out, but a second ballot was necessary, as M. Dumway had not a clear majority of the valid votes. Arthur Dillon had not been declared ineligible by the prefect of Lorient, and his election therefore had to stand until it should be annulled by the Chamber. The Boulangists had a majority in 18 districts in Paris. The Minister of Public Works, Yves Guyot, won against Turquet only in the second ballot, and Minister Constans had to contest his seat in the ballotage with the Boulangist Dr. Susini. The multitude of candidates necessitated a second vote in 183 circumscriptions, of which the Republicans won two thirds. Jules Ferry and Goblet lost their seats, and Clémenceau's was saved for him in the ballotage. Clovis Hugues, Humbert, and ex-Minister Martin-Feuillée failed of re-election, and among the Re-

actionaries Baron Dufour and M. de la Ferrière. The new Chamber is composed of very different elements from its predecessor, the most striking characteristic being the revival of the Left Center party, which was powerful under Thiers and in the contest for the preservation of the Republic during MacMahon's presidency, but retired before the rising power of opportunism, and almost disappeared when the Radicals gained the upper hand. It is led in the Chamber by Léon Say and Ribot, and numbers 50 members, whereas in the previous Chamber it had no more than 6 adherents. In the present Chamber the Radical party is much less formidable than in the last, both in number and in influence. The new Chamber contains 365 Republicans and 211 anti-Republicans, very nearly the same division that existed in the last Chamber. The number of deputies re-elected is 282, of whom 171 are Republicans. Of the 293 new members 43 have sat in previous Chambers. Of the 365 Republicans about two thirds are moderates and one third Radicals. The 211 anti-Republicans consist of 168 Royalists and Imperialists and 43 Boulangists. The last Chamber was composed of about 370 Republicans, 180 Reactionaries, and 20 Boulangists.

The Copper Crisis.—Subsequent to the discovery of profitable copper mines on Lake Superior and elsewhere in the United States and in Venezuela and other parts of South America and the reopening of the Rio Tinto mines in Spain the price of copper fell from 2,000 or 2,250 francs per ton, the rates that had prevailed before 1870, to below 1,000 francs in 1887. Many mines had then to be closed. The market in copper was chiefly in England, but Frenchmen had obtained control of the great Rio Tinto company, which in their hands had become very prosperous, and the Société des Métaux, a company formed under the patronage of the Comptoir d'Escompte, handled vast quantities of copper. When the stock in the market was very low and production much reduced, M. Secretan induced the Société des Métaux and a group of financiers to join him in buying copper and copper shares with the view of raising the price and selling at a profit. The syndicate in the autumn of 1887 conducted successfully a "corner" in Chili bars, speculators for future delivery having already oversold the market. Then, backed by powerful financial institutions, especially the Comptoir d'Escompte, the speculators conceived the idea of obtaining control of all existing supplies of copper by undertaking to buy the whole produce of the mines at a fixed price. The Société des Métaux made contracts with the chief mining companies of the world, agreeing to take 150,000 tons a year for three years at 1,500 francs a ton and half the profits of the sales. This involved an outlay of 225,000,000 francs a year, in addition to which the syndicate had to buy the produce of mines that had not agreed to contract. During 1888, the first year of the arrangement, some productive new mines were opened. Consumers would not take copper at the advanced prices. Manufacturers supplied their requirements with old copper, the public fell back on iron and steel, and dealers would not replenish their stocks. The syndicate in the beginning of March, 1889, held 160,000 tons of copper, which was scattered

in various parts of the world, and mortgaged chiefly to French bankers. The *Comptoir d'Escompte* owned copper that had cost 31,000,000 francs, and had advanced 73,000,000 francs on second mortgages on copper. This was one of the largest, most respectable, and oldest credit institutions in France, having been founded in 1848 by Republicans and remained a Republican stronghold under the empire. Not only were its capital of 80,000,000 francs and its reserve fund of 20,000,000 francs involved in the copper speculation, but it had guaranteed the contracts of the *Société des Métaux* for the other two years. Copper and Rio Tinto shares suddenly fell when the syndicate was no longer able to maintain the artificial price, and at the same time the *Comptoir d'Escompte* was pressed by the Russian Government for the immediate repayment of a deposit of 21,000,000 francs. The manager, M. Denfert-Rochereau, who was principally responsible for leading the directors into the copper speculation, committed suicide on March 8. On the following day there was a rush of depositors after their money. The great banks advanced 25,000,000 francs; but this sum was not sufficient. M. Rouvier, the Minister of Finance, convened the leading bankers of Paris, and warned them that a run on their own institutions and a general crisis would result if they would not come to the assistance of the *Comptoir d'Escompte*. The Bank of France, secured by the transfer of all the assets of the crippled bank and in part by a guarantee of the great bankers, advanced 100,000,000 francs more in order to avert a catastrophe. The Government was accused of partiality in intervening for the *Comptoir d'Escompte*, when no such means had been taken to rescue the *Union Générale* or the Panama Canal. M. Rouvier replied that it was for the sake of depositors, not shareholders, and of the general prosperity that he had interfered by offering his advice. An investigation of the affairs of the *Comptoir d'Escompte* showed that it was barely solvent. The company was dissolved, and a new one was formed in order to save the legitimate business that the bank had carried on to the advantage of French trade in Madagascar, in Shanghai, and in neutral and colonial markets.

The Paris Exhibition.—The office of presiding over the International Exposition was an object of contention not only between the different groups of the Republican party, but was coveted even more by the parties hostile to the republic, who recognized the political strength that would secure to the Republicans if they were permitted to show to the peasantry the wealth of Paris, the material progress of the country, and the splendors of the exhibition. Hence the plots to make Boulanger dictator by a *coup d'état*, the aid and encouragement given to him by the Royalists, Bonapartists, and Anarchists, and the lavish expenditure of money to secure his electoral triumphs. After the exhibition was opened there was a cessation of political agitation. The centennial festival of the revolution began on May 5 with a commemorative *fête* at Versailles. The inauguration of the International Exposition was held on the following day in order that it should not coincide with a French political feast. The monarchical governments of Europe abstained from official re-

cognition of the Exposition because it was designed to celebrate the beginnings of the revolution—the rise to power of the Third Estate and the demolition of the Bastille. The Russian, Italian, British, Austrian, and German Ambassadors left Paris before the opening of the Exposition, so that they should not countenance it even by their presence. The Prince of Wales was there, and 204 Opposition members of the English House of Commons signed an address to President Carnot expressing disapproval of the action of their Government, to which 250 members of the French Chamber responded in a letter of thanks. The Norwegians, who had an official exhibit, in a resolution of their Parliament condemned the refusal of the Swedish minister to represent them officially.

To cover the estimated cost of the Exposition, which was 43,000,000 francs, the state gave 17,000,000 francs, the city of Paris 8,000,000 francs, and private companies and individuals subscribed 18,000,000 francs on condition that they should be repaid by the first receipts, and should have as profits one third of the surplus of receipts over the 18,000,000 francs. The contributors of this guarantee fund objected to outlay for decorative and unremunerative purposes, and especially to the deliverance of free tickets to public school teachers and working-men's delegations. M. Alphand, the general director of the work, therefore obtained by the law of April 4, 1889, authorization of a new association, which raised a capital of 30,000,000 francs, of which 18,000,000 francs were applied to the reimbursement of the guarantee fund, 3,500,000 francs to improvements and further embellishments of the exhibition, 3,000,000 francs to the cost of the financial operation, and 5,500,000 francs to lottery prizes and the redemption of bonds in seventy-five years. The Government, in addition to conferring on the company the privilege of establishing a lottery, transferred to it 30,000,000 admission tickets of the nominal value of one franc each. The purchaser of each twenty-five-franc bond received twenty-five tickets. The sales of these tickets in the open market brought the price of admission down to two thirds of a franc immediately, and eventually to one quarter of a franc, while the bonds were quoted after the close of the exhibition at ten francs. The cheapness of the entrance multiplied the number of visitors, which averaged 125,000 on working days, and 300,000 on Sundays. The repayment of the guarantee fund made the state absolute owner of the machinery gallery, the palaces of the fine and liberal arts, and other buildings.

A few weeks after the opening of the exhibition the cabmen of Paris struck work. Most of the cabs are owned by two companies, which charge the drivers an average rate of hire that is fixed from day to day by dividing the total earnings by the number of cabs, after deducting a certain proportion as the drivers' share. The men complained that the hire had sometimes been raised lately to twenty-seven francs a day, which left most of them no margin, and demanded a fixed rate of wages, naming seven francs a day. When the citizens of Paris and visitors had been deprived for four days of the ordinary means of locomotion, the cabmen were compelled to withdraw their demand and resume work on

June 19 by a threat of the Municipal Council to increase the license fee from one franc to ten francs.

An extraordinary credit of 500,000 francs was voted by the Chamber in the beginning to the President of the republic, and credits to the amount of 2,000,000 were distributed among the ministers to enable them to entertain strangers, and supplementary credits were afterward given for the same purpose. At least 2,000,000 francs were thus spent on balls, reception, and various *fêtes*. On June 17 the anniversary of the Tennis Court oath was celebrated at Versailles. On Aug. 18 a banquet was given in the Palais de l'Industrie to 15,200 mayors of French communes. Another great *fête*, that cost 300,000 francs, was the presentation in the same building of a triumphal ode written by Augusta Holmes.

The International Exhibition had an important influence on the commercial movement. During the first nine months of 1889 the total value of the imports and exports was 286,344,000 francs more than during the same period in the preceding year, or 5,655,277,000 francs as against 5,368,933,000 francs. The imports increased 40,810,000 francs, and the exports 245,634,000 francs. The latter figure is not exact, as a great quantity of objects taken away by travelers is not included.

International Congresses.—While the exhibition was in progress, about seventy national and international congresses were held in Paris. There was a congress in advocacy of Sunday rest, which expressed the opinion that work people, even when called upon for technical reasons to work on Sundays, should be granted another day of repose, and that payment of wages ought not to be made on Saturday or Sunday. Many English and American exhibitors inconvenienced and offended the French officials and visitors by screening their displays on Sunday. There was a convention of Spiritualists; another of hypnotists, who exhibited curious experiments; one of opponents of compulsory vaccination, who asserted that the practice had increased infant mortality, and denounced especially the laws of Holland, Great Britain, and Germany; one of anti-tobacconists, who held that smoking engenders a taste for drink, and in youth arrests growth; and a congress of woman's work, which advocated that women should have a right to act as witnesses and guardians, to dispose of the fruits of their own labor, to decide about the education of their children, and to give consent to their marriage. A convention of alienists disapproved changing the French law in relation to the incarceration of the insane, except that homicidal maniacs should be more securely sequestered. A congress of hygiene met on Aug. 4 to discuss the inspection of unwholesome dwellings and kindred subjects. An electrical congress recommended the adoption of the *joule* as the unit of work, and the *watt* as the unit of power. The congress of anthropology called in question the Darwinian hypothesis regarding the origin of mankind. The geographical congress gave much attention to the subject of teaching. A congress of experts in relation to fire extinguishment recommended that insurance companies be taxed to support fire departments. A congress of railroad managers proposed that tolls should

be levied on canals and rivers in order to relieve railroads of competition, and discussed tunnel ventilation and other technical subjects. A congress to discuss questions relating to trade and manufactures passed resolutions in favor of making liberal commercial treaties, condemning *ad valorem* duties, and advising international commercial and maritime laws. The International Monetary Congress discussed bimetallism favorably, without adopting a resolution. A public charity congress agreed that charitable aid ought to be given as a matter of right to persons incapable of earning their livelihood, and that local governments should furnish medical attention and medicaments gratuitously to the poor. The question of profit-sharing was discussed in a special congress, which approved the system, and recommended setting aside the share of workmen as savings or for the purchase of houses on the installment plan. A congress to discuss state regulation of prices disapproved interference. There was a congress of actuaries and accountants that recommended the collection of statistics of production and capital every year on which to base state and local taxation. The French brewers held a congress, at which considerable progress in their art was evinced, which will be advanced by the laboratory for the study of fermentation recently established in the Agronomic Institute and the proposed brewery schools. The Peace Congress met in June with a large attendance from European and American countries. An international congress of literary workers was presided over by Jules Simon. The Socialists of all countries and various schools met in June and July to discuss their programmes and plans of action. The first of these congresses was held by the advocates of the nationalization of land, of which Municipal Councilor Longuet of Paris was chosen president, and Henry George honorary president. The Marxists and the Possibilists, who met in the middle of July, held long, but futile negotiations with regard to a fusion. The former, who believe in a centralized socialistic government, numbered 180 French and 189 foreign delegates, 82 of the latter being Germans, including 11 members of the Reichstag. The resolutions demand the eight-hour working day for adults; a weekly day of rest; prohibition of night-work, with exceptions; prohibition of children's labor under fourteen years, and limitation to six hours between fourteen and eighteen years of age; establishment of an international minimum of wages, to be identical for both sexes; nomination of national and international inspectors to be paid by the state. The chairman was the German Social-Democratic leader Liebknecht. The Possibilists, or Federalists, who differ from the others chiefly in opposing centralized power, have for their leaders citizens Joffrin and Lavy. They adopted the same resolutions regarding the regulation of labor as the Marxists, and in addition demanded universal technical education; limitation of overtime work to four hours a day, with double wages for night-work; complete responsibility of employers for accidents; establishment of workmen's shops by the aid of the municipal or state Government; like pay for foreign and native laborers; establishment of a minimum

rate of wages in every locality proportionate to the cost of living; abolition of all laws against the organization of laborers. The congress voted to establish an international correspondence bureau in Brussels.

Algeria.—Since 1871, when military government was abolished, except for the Saharan districts, Algeria has been administered by a civil governor-general, under the direction of the President of the republic. All legislative measures must be enacted by the French chambers. The present Governor-General is Louis Tirman, who was appointed on Nov. 26, 1881.

The area, in square kilometres, of the three departments into which the organized part of Algeria is divided, and their population on May 30, 1886, are given in the following table:

DEPARTMENTS.	Area.	Population.
ALGIERS:		
Civil department	23,550	1,202,768
Military division	81,617	177,773
ORAN:		
Civil department	24,643	752,554
Military division	61,460	210,885
CONSTANTINE:		
Civil department	26,043	1,369,153
Military division	101,121	197,266
Total	818,334	3,910,399

The agricultural population of Algeria in 1887 was 3,246,299, of which number 200,598 were Europeans. In 1884 the marriages among the white population numbered 3,543; births, 15,618; deaths, 13,123; excess of births, 2,495.

The public revenue is derived chiefly from indirect taxes, licenses, and duties on imports. The receipts for 1888 were estimated at 44,034,065 francs. The military expenditures are defrayed by the French Government. The total expenditures for 1888 were estimated at 123,614,173 francs, of which 43,602,887 francs were for civil administration, 53,352,489 francs for military services, and 26,658,797 francs for extraordinary purposes. For colonization the sum of 2,815,000 francs is set down in the budget. From 1830 till 1888 the total expenditure in Algeria has been 5,018,066,462 francs, of which 1,256,041,004 francs have been covered by receipts and 3,785,684,255 francs have been paid out of the French treasury, mainly for military expenses. The total sum expended on colonization has been 144,205,504 francs.

The total value of the foreign trade of Algeria in the year after the conquest was 8,000,000 francs, and in 1850 it was only 13,000,000 francs. In 1860 it had grown to 157,000,000 francs, in 1870 to 300,000,000 francs, and in 1888 to 420,000,000 francs. The country is traversed in every direction by excellent roads connecting towns and villages that have sprung up among the native population. The Arabs coming into daily contact with Europeans, and finding regular and lucrative employment, have become thoroughly pacified. The cultivation of grain, of wine, of fruits, and of vegetables is exceedingly profitable, and cotton is also grown to advantage. Locusts damaged the crops in 1888 to the extent of 25,000,000 francs, and the local government has made preparations to fight against this plague in the future. The area settled by agriculturalists in 1884 was 45,000,000 acres, 94 per

cent. of which was owned by Europeans. There were 7,300,000 acres under wheat, barley, oats, and other cereals. The wine crop in 1887 was 41,764,000 gallons. The olive crop of 1886 amounted to 54,764,000 pounds of fruit, and the oil produced was 9,034,652 gallons. There were about 20,000 acres planted to tobacco in 1887, producing 11,390,000 pounds. In 1887 the number of cattle was 1,198,157; of sheep, 9,357,774; of goats, 4,666,119.

The total value of the special imports in 1887 was 211,337,139 francs, of which 153,190,139 francs came from France and 58,147,416 francs from foreign countries. The chief imports from France were cotton goods, leather goods, hardware, and apparel. The total value of the exports in 1887 was 185,959,302 francs, showing a gain of nearly 4,000,000 francs over the total for the previous year, due mainly to increased exports of wine, fresh fruit, olive oil, cork, esparto grass, and copper ore. The exports of cereals to France were 38,680,087 francs in value; of wines, 26,668,893 francs; of animals, 20,454,344 francs; of wool, 16,794,483 francs. There is a considerable export of esparto and other fibers for paper stock to Great Britain.

The number of vessels entered in 1887 was 3,956, of 2,085,755 tons, and the number cleared was 4,269, of 2,328,482 tons. This was exclusive of the large coasting trade carried on largely in steamers which afford regular and cheap transit between the ports. The merchant navy of Algeria in the beginning of 1888 consisted of 166 vessels, of 4,450 tons. A network of railroads which is extending every year secures rapid communication in the interior. The main line runs parallel with the coast from the frontiers of Morocco to those of Tunis, connecting with a line in Tunis that has been built for 132 miles. Branches running south communicate with Biskra, Mecheria, and other towns. The total length of railway open for traffic in 1888 was 1,550 miles. The people of Algeria have asked the French Government to guarantee a loan of 400,000,000 francs for new railroads, harbors, and other remunerative works. The telegraphs, inclusive of Tunisian branches, have a total length of 3,645 miles, with 8,678 miles of wire.

Tunis.—The regency of Tunis, nominally a vassal of Turkey, was declared to be under the protectorate of France in 1882, and since then the judicial, educational, and administrative systems have been to a large degree assimilated to those of France. The Bey, Sidi Ali, is governed in all public acts by the advice of the French minister resident, who acts under the direction of the French Ministry of Foreign Affairs which has a special bureau devoted to Tunis. The French Resident General is M. Regnault.

The revenue for 1888-'89 was estimated at 31,876,000 piasters, of which 8,310,000 piasters are obtained by direct taxation, 3,600,000 piasters come from customs duties, 5,420,000 piasters from monopolies, and 7,000,000 piasters are taken from the surplus of previous budgets (1 piaster = 12 cents). The budget for 1889-'90 makes the total revenue 15,600,000 francs, and the expenditure 19,200,000 francs. Revenue has fallen off owing to a drought in 1888. In 1889 the harvest was abundant. The public debt was converted in 1884 into a consolidated loan of

125,000,000 francs bearing 5 per cent. interest, and in the same year the floating debt was taken up by the emission of 6,307,520 francs of perpetual 4 per cent. *rente*.

The imports in 1888 amounted to 34,200,000 francs, an increase of 6,500,000 francs over the previous year, the imports of flour from France having trebled on account of the failure of the crops. The imports of cotton goods in 1887 were 5,300,000 francs; of coffee and sugar, 2,400,000; of liquors, 2,000,000 francs. The exports of olive oil in that year were valued at 4,500,000 francs; of wheat, 6,000,000 francs; of barley, 3,450,000 francs; of esparto, 1,700,000 francs; of sponges, 800,000 francs; of woolen goods, 5,700,000 francs. The total exports of staple products amounted to 22,450,000 francs. There were no exports of wheat or barley in 1888, but the deficiency was in part made good by increased exports of other articles, the total for the year being 16,700,000 francs. Of the exports in 1887, 8,500,000 francs were destined for Italy, 5,500,000 francs to France, and 3,500,000 francs for England and Malta. Of the imports 6,000,000 francs were from England and Malta, 5,750,000 francs from France, 3,500,000 francs from Germany, 2,750,000 francs from Belgium, 2,125,000 francs from Austria, and 2,000,000 francs from Italy. The number of vessels entered at the principal ports in 1887 was 6,725, of 1,672,266 tons, three fourths of the tonnage being French. There are 260 miles of railroads and 2,000 miles of telegraphs in operation.

Indo-China.—By the decree of Oct. 17, 1887, Cochin-China, Cambodia, Annam, and Tonquin were all placed under the control of one official, the Governor-General of Indo-China, with a lieutenant-governor in charge of the local administration in Cochin-China and residents general as chief civil officers in Annam and Tonquin and in Cambodia. By virtue of the same decree and that of April 12, 1888, the protectorate of Annam and Tonquin were placed, with the other countries that go to form French Indo-China, under the direction of the Ministry of Marine and the Colonies. Each of the four countries retains its separate budget and administrative autonomy. M. Piquet replaced M. Rheinart as Governor-General of Cochin-China in the summer of 1889.

The kingdom of Annam proper, deprived of the six provinces that form the French colony of Cochin-China and of the thirteen provinces of Tonquin, is inhabited by about 2,000,000 persons, not counting the Laos tribes or Moïs dwelling in the chain of mountains that forms the eastern watershed of the Medong. Hué, the capital, has 30,000 inhabitants, and with its suburbs, 50,000. The educated classes profess Confucianism. There are about 420,000 native Roman Catholic Christians. Dong Kang, the King of Annam, died in January, 1889, and Bung Kang, son of the former King Tu Duc, was chosen by the court as his successor with the approval of the French Government. As the new king is only ten years of age, a regency was formed under the presidency of Prince Hwai Duc.

Tonquin is peopled by the same race as Annam proper. It is about one third as large as France, and contains from 9,000,000 to 12,000,000 inhabitants. There are 400,000 native Christians. Ha-

noi, the capital, has a population of 140,000. The imports of the port of Haiphong in 1887 amounted to 38,368,725 francs, and the exports to 10,051,801 francs. Tonquin has much soil of exceeding fertility, and possesses large coal fields not yet developed. There are said to be rich mines of gold, silver, iron, and copper. Coal mines have been opened at Hongay. The budget of Annam and Tonquin for 1888 makes the total receipts 17,321,000 francs, and the expenditures 17,034,620 francs. The troops consisted of 2,720 officers and staff employés and 22,533 men, of whom 11,883 were natives.

The rebellion against French authority in Tonquin, encouraged by the authorities of the neighboring Chinese province of Quang-si, was still in full activity at the beginning of 1889. The rebels were well armed and ably led. The people were largely in sympathy with them, and even paid them taxes. They were exasperated by the taxes, partly punitive, imposed by the French on villages already impoverished by war and river piracy. The native collectors were ordered to take hostages from the villages that would not pay, and if that failed of the purpose, to attach the cattle and implements, leaving the villagers no resource except to join the robbers. According to an official computation Tonquin, up to 1888, had cost the French army 7,930 men through death, and rendered unfit for service 28,630 more. The medical reports for 1889 were more favorable than they had been. Thuyet, the ex-Regent of Annam, who was falsely reported killed in 1888, recruited a force in China to enter Tonquin at Caobang. In connection with his movements, river piracy increased in the northeast of the Red river delta. Some of the chief robbers were captured. A French force went to Caobang in order to meet an invading force. A village in which a body of rebels fortified themselves was captured after a siege, and in Haiduong province Colonel Servières burned to the ground a large town that had sheltered pirates. Numerous bands of Chinese pirates were dislodged on the Claire river, but they returned to their positions in greater force, and a second French column was unable to make head against them. General Borgnis-Desbordes marched in January against a formidable force of Chinese pirates. He dislodged them from the first of their fortified positions, losing an officer and twelve European soldiers. On Feb. 2 he attacked them near Cho Chu, and captured one position after another. At Chomoi another severe engagement took place, which resulted in the return of most of the Chinese that Thuyet had recruited. While in March the other provinces were peaceful, Bacninh and Haiduong were disturbed by native insurgents. In order to suppress these the military authorities decided that it was safe to return to the system of employing against them the indigenous soldiers, who understand their habits and stratagems, and can even acquaint themselves with their faces and names. This plan proved successful. Before summer most of the pirate chiefs had surrendered or ceased their activity except near the Chinese frontier, and taxes were paid with regularity.

An ex-officer of the French navy, M. de Mayréna, induced the tribe of Sedangs inhabiting a small district on the borders of Annam to ac-

cept him as their king. In 1889 an official was sent to the Sedang villages to inform the people of the disapproval of the French Government of the proceedings of this adventure, and to take them and their neighbors, the Mahongs, under French protection.

Colonies.—The colonies and protectorates of France, inclusive of Algeria and Tunis, have an aggregate area of 3,112,110 square kilometres and a population estimated at 30,138,000 souls. In Asia there are the French stations in India, 508 square kilometres in area, with 277,266 inhabitants in 1886; the colony of Cochin China, 59,800 square kilometres in extent, with a population estimated in 1886 at 1,795,000; the protectorate of Cambodia, about 100,000 square kilometres, with 1,500,000 inhabitants; the protected kingdom of Annam, 275,300 square kilometres, with an estimated population of 6,000,000; and Tonquin, a protectorate administered by French officials, containing 90,000 square kilometres, and 9,000,000 inhabitants. In Africa, besides Algeria and Tunis, the French possessions include Senegal and its dependencies, 358,500 square kilometres, with about 1,850,000 inhabitants; 24,000 square kilometres on the Gold Coast; the French territory of the Congo and Gaboon, estimated together at 670,000 square kilometres, with a population unknown; the island of Réunion, containing 175,271 inhabitants in 1886; Sainte-Marie de Madagascar, Mayotte, Nossi-Bé, Oboek, and the protectorate of the Comores; and the great island of Madagascar, 591,964 square kilometres in area, with a population of 3,500,000 which stands virtually under the protectorate of France. The French possessions in Oceania include New Caledonia and the Loyalty Isles, Tahiti, and Moorea, Rurutua and Rimitara of the Austral group, or Tubuai Isles (annexed in 1889), the archipelago of Tuamotu and the Gambier Isles, the Marquesas Islands, the Wallis Islands, and the Isles sous le Vent, the last-named annexed in 1888, having an area of 470 square kilometres and 5,200 inhabitants, making the total area of the French islands in the Pacific 23,608 square kilometres, and the population 85,668. In America France possesses St. Pierre and Miquelon, 235 square kilometres, with 5,929 inhabitants in 1887; Guadeloupe and its dependencies, 1,870 square kilometres, with 182,619 inhabitants in 1886; Martinique, 988 square kilometres, with 175,755 inhabitants; and French Guiana, 121,413 square kilometres, with 26,905 inhabitants.

The imports and exports and the colonial budgets of some of the colonies for 1886 are given, in thousands of francs, in the following table:

COLONIES.	Imports.	Exports.	Budget.
Establishments in India.....	5,600	22,000	2,221
Cochin-China.....	85,600	83,200	23,622
Senegal.....	24,600	18,800	2,831
Gaboon.....	2,500	3,100	432
Réunion.....	28,100	13,300	5,209
Mayotte.....	1,200	1,500	234
Nossi-Bé.....	2,600	3,600	356
Ste-Marie de Madagascar.....	800	700	.....
Guiana.....	7,200	4,700	2,123
Guadeloupe.....	17,500	16,300	4,158
Martinique.....	23,700	20,400	4,534
St. Pierre and Miquelon.....	14,000	11,400	363
New Caledonia.....	6,700	3,000	2,229
Tahiti.....	3,000	2,600	1,224

In the same year the French Chambers appropriated 37,294,000 francs for the colonial service. The budget for 1889 provides for the expenditure of 56,763,633 francs on the colonies, the chief items being 9,333,000 francs for Senegambia, over 4,000,000 francs for Réunion, 2,500,000 francs for New Caledonia, 2,700,000 francs for Cochin-China, and 15,750,000 francs for Annam and Tonquin. In addition the budget of the Ministry of Marine contains expenditures on account of the colonies.

There are 71 kilometres of railroad in Cochin-China, 396 kilometres in Senegal, 126 kilometres in Réunion, and 194 kilometres in Martinique. The telegraphs in operation in the colonies comprise 2,310 kilometres in Cochin-China and Cambodia, 2,457 kilometres in Senegal, and 126 kilometres in Réunion.

In the autumn of 1888 the French possessions on the Gulf of Guinea were disturbed by the warlike actions of the natives of the banks of Muny river. The territory is claimed by the Spanish Government, which, however, took no steps to suppress the disorders. The French Government, therefore, proceeded to conquer and annex the district in spite of Spanish protests, and a lively exchange of notes took place, in consequence, between the two Cabinets.

There has been a spirited rivalry in the same region between the French and the English. Before the re-establishment of French stations at Porto Novo and Kotonou the trade of Dahomey, Abeokuta, and other places in the interior passed through Lagos. King Tofa, the native chief of Porto Novo, who, previous to the French Protectorate had been a vassal of the King of Dahomey, closed the route through his territory that had been used by the Dahomians, upon which the King of Dahomey threatened to descend upon Porto Novo, and finally carried out his threat, killing people and sacking villages. In April, 1889, three French war vessels went to Kotonou, and troops were landed. The British have fined and deported chiefs over whom they claim a protectorate for having entered into engagements with French political agents. A difficulty has arisen with the British Government in regard to the protectorate declared over the Bontokoo country on the West Coast of Africa. France proclaimed a protectorate also over the Samoo country, which lies between the Great Seareies and the Mellieouri rivers. The Bey Sherbro, who was the ruler of the country, asserted that he stood under British protection by virtue of treaties dating from 1845, and when the French attempted in March, 1889, to establish a custom-house on his territory he made a prisoner of the French commandant, and took him to the nearest British post, whence he was sent to Freetown, and there was liberated. A French expedition overran the Samoo district, killed the people who resisted, destroyed villages, drove out the Bey, who took refuge with the English, and thoroughly subjugated the country. There was a convention signed in 1881, whereby France and England limited the extension of their dominion on either side to a line drawn midway between the Mellicouri and the Great Seareies rivers; but the French Legislative Assembly would not ratify the arrangement.

FRATERNAL CONGRESS. The National Fraternal Congress is composed of delegates representing various societies formed for mutual benefit and protection and the maintenance of an insurance fund to meet the contingencies of illness and death. The third annual session was held for two days at the Hotel Vendome, Boston, Mass., Nov. 13 and 14, 1889. The roll of officers comprise John Haskel Butler, of Boston, Mass., President, O. M. Shedd, of New York, Secretary, and George Hawkes, of Philadelphia, Treasurer. Seven new societies were admitted to membership, and one was refused on account of endowment policy, membership in the Congress being confined to orders without this feature. The orders represented were: Ancient Order of United Workmen, with delegates from Iowa, Pennsylvania, Missouri, and Kansas; Knights of Honor, from New York and Massachusetts; Royal Arcanum, from Massachusetts and Maryland; American Legion of Honor, from New York and Boston; Home Circle, from Boston; Order of United Friends, from Rhode Island and Pennsylvania; Royal Templars of Temperance, from New York; Knights of Maccabees, from Michigan; Knights of Pythias, from Pennsylvania; Equitable Aid Union, from Pennsylvania and New York; Improved Order of Heptasophs, from Pennsylvania; Knights and Ladies of Honor, from Kentucky, New Jersey, and Massachusetts; Northern Mutual Relief Association; Order of Chosen Friends, from New York and New Jersey; Order of Golden Cross, from Massachusetts; Order of Golden Chain, from Maryland; Fraternal Legion, from New Jersey; Order of Mutual Protection, from New York; and Royal Society of Good Fellows, Knights of the Golden Eagle, and Protected Home Circle, each with delegates from Massachusetts. To these may be added the Orders of the Fraternal Lodge, Legion of Honor, Knights of Columbia, and United States Benevolent Fraternity, which were not represented this year.

The reports of the various committees, made and accepted, were: Those in regard to medical examiners and examinations; the condemnation of the attitude of the State Superintendent of Insurance of Kansas toward fraternal beneficial societies; of the treasurer, with balances over and above current expenses of the session; and that on statistics and good of the orders. The recommendation of the committee on statistics that the Superintendent of the Census be requested to furnish appropriate blanks for the collection of statistics from fraternal societies; that all societies be requested to furnish data and statistics necessary for proper census reports; and that more care be observed in excluding the immoral and dissipated from membership in the various societies, was adopted. A constitutional amendment was adopted, providing for the sending of all reports from committees and officers to the secretary, at least thirty days before the time of the meetings of the annual Congress, to allow for their printing and distribution to officers and delegates. The Committee on Laws made the following report, which was accepted, and its recommendations were adopted: First, that the fraternal societies should be exempted from the provisions of all laws relating to insurance companies, regular or co-op-

erative. Second, that no legislation is needed, except to protect the fraternal beneficial orders from societies not properly fraternal, in States where the distinction is not drawn by present legislation. Third, if deemed advisable, under peculiar circumstances, in certain States, the New York law should be used, omitting the report to the insurance commissioner, and recommending the formation of a new department, to be called the Department of the Fraternal Orders, in its stead.

The general tenor and purposes of the societies forming the Congress are further embodied in the report of the president, as submitted to the delegates. He said:

"You have assembled for the fourth time, and in third annual session, as representatives of fraternities whose purposes are to develop in their living members the true spirit of brotherly love, and to provide for the widows, orphan children, and dependents of deceased members abundant protection. The world has witnessed the majestic growth of associations whose time-honored records for valiant achievements in charitable work bear illustrious testimony to the existence of noble instincts and aspirations in humanity. The great brotherhoods which have been founded within the shrines of Masonry and Odd-Fellowship are enduring monuments to a grandeur and nobility in manhood. The amount of good which these organizations have accomplished is well nigh inconceivable, yet they have never claimed or attempted to offer substantial benefits to the homes and families of their deceased members. To their poor and unfortunate, with unstinted hand, have they brought their generous offerings, not alone of money, but of brotherly sympathy and the strong uplifting arm. Beside the newly made graves of the departed they have, through the centuries, mingled their tears with those of the widow and the orphans, and by acts of kindness and watchfulness lightened the sorrow in their saddened hearts and homes. Beyond this, in the line of helpfulness and aid, the older fraternities have not carried charitable purpose. If the comforts of the home which the husband and father had supplied were to be continued after his death, he must needs purchase the protection of those who made a business of providing it. Unfortunately, this protection could not be purchased under existing market rates, at a price within the ability of those whose need of it was greatest. For the home of him who could meet the purchase price of the commodity, it would not probably be required. On the other hand, where the requirement even of the necessities of life was actual, the heavy cost barred its acquirement. A humble mechanic in a small Pennsylvania village, twenty-one years ago, quietly, unostentatiously, and even to himself unconsciously, touched a spring that set in operation a movement that has proved in itself to be the most valuable and important system of protection for the home that mankind has ever possessed. He lived to witness the development of his simple idea into the great fraternal beneficiary system. He saw the army of brothers, from his little band of men in Meadville, increase year by year in numbers, in strength, and in character, until there had passed in review be-

fore his happy vision almost a million of fraternal men, enlisted under the standard that he had raised, who were confident of assured protection to their homes. The records spread before him showed the distribution, by virtue of its simple operation, of more than \$100,000,000 in the homes of the common people of his country. Those who needed could have, because the beneficent system had brought the price of protection within the means of the humblest mechanic at the bench, the clerk at his desk, and the laborer who tilled the soil. A few years ago he died, and his body was tenderly laid to rest by his mourning brethren; but his memory is cherished by the fraternal men of every society and association, and the grand order that he founded has erected a magnificent monument to perpetuate the name of John J. Upchurch.

"The method of this system is of the simplest character, and is briefly described. That brotherly love which is taught and inspired by the example of the older fraternities is the element applied to the collection and distribution of the benefits formerly supplied only through business or commercial channels. Every thought of gain or profit is eliminated from the process. The sole mercenary feature that can exist under the system only adds to its stability, and lies in the natural fact that each brother is inspired by the love of his own home to protect the widow and the fatherless in the home of his deceased brother. But around the system, as a sustaining power and support, a reserve force of vital strength, maintaining its solidity and guaranteeing its perpetuity, is the fraternal sentiment that exists in the heart of every man, which is kindled and kept aglow by the ennobling influences and the love of kindly deeds and charitable work encouraged and promoted within the lodge room and the council chamber.

"As representatives of associations forming this system, you have met that you may take into consideration measures for its careful preservation, discuss the principles upon which it is established, and adopt precautionary measures to ward off dangers which may threaten from those who are hostile to it, as well as those that are inherent in it from the inevitable imperfections of humanity. Twenty-four fraternal associations are included in the Congress, whose total membership is about 900,000. Taking into consideration the members of those fraternities that have not yet become associated with us in the work of the Congress, our system has more than 1,000,000 men and women as members. It is wiser for us, then, at the outset of our annual work, to pause for a single moment and view the magnitude of the interests involved in any un-

dertaking, whether it be humble or exalted, which aims to benefit or strengthen this system. The future of a million homes, the comforts of daily life, the blessings of education, possibly the maintenance of endearing family ties, depend in some measure upon our deliberations and recommendations. Knowing you all as I do, and the earnestness of purpose that has actuated you, individually—many of you during years of faithful and self-sacrificing labor—I can have no doubt of the fidelity with which you will perform your duties. As I review the suggestions which it was my privilege to make one year ago, I can find very little to add thereto. Each annual session is of greater value than its predecessors. There has been idle criticism because the Congress has apparently accomplished little. In reality, more has been obtained from these meetings than the promoters anticipated. It requires time to accomplish a permanent good, however small, when so many varied interests and so large a number of individuals have to be brought into united and accordant action. The fact that to-day we have a Congress of fraternities, and have been able to assemble for two consecutive years, merely upon the theory of its utility, is success in itself. We can now step forth with confidence, and formulate plans and declare our methods with a certainty that the brotherhoods we represent will treat them at least with respectful consideration.

"You will be called upon to consider the qualifications for membership in the Congress, upon the report of the standing committee on laws, concerning matter referred to them at the last annual session. When my suggestions were made last year, the number of associations organized to pay maturing benefits was small, and they were working in reality as fraternities. During the year, the number has very materially increased, and in the character of their work they seem to have eliminated, to the utmost possible extent consonant with statute law, all idea of any other than fraternal relation among their members. My own view is that our present requirement for membership is a good one, and that no amendment would be salutary. We want no association in this Congress organized for the purpose of making money for its promoters. It is no discredit to any organizer of a society that he should accept, or have in contemplation, the substantial rewards of faithful, efficient service. That is legitimate. But when you find the evidence of a speculative invention, and the expectation of profit or of dividends from the annual income, in the organization of any so-called fraternity, whether it be within or without the limitations, such facts are questionable."

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GEOGRAPHICAL PROGRESS AND DISCOVERY. Africa. The great event of geographical interest during the year was the return of the Stanley Relief Expedition. No other African journey has been watched with the attention that this perilous undertaking has excited all over the civilized world. Rumors of disaster were rife at the time when the advance column

was lost sight of during the journey through the dense unknown forests lying between the Aruwimi and Emin Pasha's country; and the choice of the Congo route was regarded as having been proved a fatal mistake. The undertaking was, indeed, carried out with dreadful loss of life and acute suffering from hunger, disease, and war; but it accomplished its prime object in opening

the way to civilization for the Europeans and Egyptians shut up in the pasha's province, and more than fulfilled expectation in its geographical results.

The voyage from Zanzibar to the mouth of the Congo, and up that river to the Aruwimi, together with the advance of Stanley up the Aruwimi with a part of his forces, while the remainder were left at Yambuya to await the arrival of Tippu Tib were noticed in the "Annual" for 1887. We give in this volume a map of Stanley's route; and in the volume for 1888, at page 123, will be found a map of Central and Southern Africa, showing a larger extent of territory. An account of Emin Bey and his work in Africa was given in the article "Geographical Progress and Discovery" in the volume for 1886.

The rear guard of Stanley's party was left in a palisaded camp at Yambuya on the Aruwimi, under the charge of Maj. Edmund Barttelot and Mr. J. S. Jamieson. They were to wait there until the arrival of Tippu Tib with the carriers he had promised, and then follow the advance column to the Albert lake. If Tippu failed, they were to discard a part of the baggage and hasten on with the rest.

Stanley set out on June 28, 1887, with 389 officers and men up the Aruwimi. They were met from the first by opposition on the part of the natives, and a skirmish took place within twenty-four hours of their departure, without, however, any loss to Stanley's party. On the 19th of July they reached Bonalya; here they began a journey by land, heading due east toward the Albert Nyanza, where they expected to find Emin Pasha. From the last of August to the 12th of November, they suffered more or less from hunger, and death, and desertion rapidly thinned their ranks. On the 13th of August, at Air-Sibba, they were attacked with poisoned arrows and lost five men. Aug. 31 they met a party of Manyema belonging to the caravan of Ugarowa, *alias* Uledi Balyuz, who turned out to be a former tent boy of Speke's. Twenty-six men deserted to this caravan. At Ugarowa's station, farther on, fifty-six men were left to recover from sickness. The region had been so devastated by the Arabs that food was very scarce. Oct. 18 they entered the settlement occupied by Kilinga-Longa, a Zanzibari slave belonging to Abed bin Salim, an old Arab whose bloody deeds are recorded in "The Congo and the Founding of its Free State." Of the month that followed Stanley says:

This proved an awful month to us. Not one member of our expedition, white or black, will ever forget it. Out of the 389 men with whom we started we lost 66 by desertion and death between Yambuya and Ugarowas, and left 56 sick at the Arab station. On reaching Kilinga-Longa's, we found we had lost 55 more men by starvation and desertion. We had lived principally on wild fruit and nuts. Abed Bin Salim's slaves did their utmost, short of open hostilities, to ruin the expedition. They induced the men to sell rifles and clothing, so that when we left we were beggared and the men were nearly naked. We were too weak to carry the boat and seventy loads of goods, and we left them at Kilinga-Longa's, under Surgeon Parke and Capt. Nelson. . . .

Our suffering from hunger, which began on Aug. 31, terminated on Nov. 12. Ourselves and men were skeletons. Out of the 389 men we now numbered only 174, and several of these had no hope of life left.

A halt was ordered for the people to recuperate. Hitherto they were skeptical of what we had told them. The suffering had been so awful, the calamities so numerous, the forests so endless that they refused to believe that by and by we should see plains and cattle and the Nyanza and the white man, Emin Pasha. We felt as though we were dragging them along with a chain around our necks.

"Beyond these hardships," said I, "lies a country untouched, whose food is abundant and where you will forget your miseries; so cheer up, boys; be men; press on a little faster."

They were deaf to our prayers and entreaties, for, driven by hunger and suffering, they sold their rifles and equipments for a few ears of Indian corn, deserted with the ammunition, and were altogether demoralized. Perceiving that prayers and entreaties and mild punishments were of no avail, I then resorted to visiting upon the wretches the death penalty. Two of the worst cases were accordingly taken and hanged in the presence of all. We halted thirteen days at Ibwire and reveled in fowls, goats, bananas, corn, sweet potatoes, yams, beans, etc. The supplies were inexhaustible. The people glutted themselves. The result was that I had 173 sleek and mostly robust men when I set out for Albert Nyanza on Nov. 24. (One man had been killed by an arrow.)

We were still 126 miles from the lake, but with food such a distance seemed nothing. On Dec. 1 we sighted the open country from the top of the ridge, which was named Mount Pisgah because it was our first view of the land of promise and plenty. Dec. 5 we emerged on the plains, and the gloomy, deadly forest was left behind. After one hundred and sixty days continuous gloom we saw the light of day, making everything beautiful. We thought we had never seen grass so green or country so lovely. The men leaped for joy and ran with their burdens. . . .

Dec. 9, we came to the country of the powerful Chief Mazamboni. Our road lay through his numerous villages. The natives sighted us and were prepared. We seized a hill as soon as we arrived in the center of a mass of villages on Dec. 9, occupied it, and built a zariba of brushwood as fast as we could cut it. The war-cries were terrible from hill to hill across the valleys. People gathered by hundreds from all points, and war horns and drums announced the struggle. We checked the first advance of the natives with a little skirmish, and captured a cow, the first meat we had tasted since leaving the ocean. Night passed peacefully.

In the morning we opened a parley. The natives were anxious to know who we were, and we were equally anxious to glean news. They said Mazamboni only held the country for Kabba Rega, who was their real king. They finally accepted cloth and brass rods to show Mazamboni, and hostilities were suspended until morning, when Mazamboni sent word that we must be driven from the land. The proclamation was greeted in the valley with deafening cheers. Their word *Kanwana* signifies peace and *Kurwana* war. We hoped we had heard wrongly therefore, and sent our interpreter nearer to inquire. They responded "Kurwana," and emphasized it with two arrows fired at him.

Our hill was between two valleys. I sent forty men under Lieut. Stairs to attack the natives in one valley and thirty under Mr. Jephson into the other valley. Stairs crossed a deep river in face of the natives, assaulted the first village, and took it. The sharpshooters did effective work and drove the natives back up the opposite slope until the fight became general. Jephson also drove the natives in front of him. He marched straight up the valley, driving back the people and taking villages as he went. At 3 P. M. not a native was visible anywhere except on one small hill a mile and a half west.

On the morning of the 12th we continued our march. During the day we had four little fights. On the 13th we marched straight east, and were attacked by new forces every hour until noon, when we halted

CENTRAL AFRICA

SCALE OF MILES
0 25 50 100 150 200 250 300

— Route of the Emin Pasha Relief Expedition under H. M. Stanley.

----- Proposed Railway



Longitude 20 25 30 35 40 East from Greenwich

for refreshments. At 1 P. M. we resumed our march, and fifteen minutes later I cried, "Prepare for sight of Nyanza!" The men murmured and doubted, and said: "Why does the master continually talk this way? Nyanza indeed! Is not this a plain, and can we not see the mountains at least four days' march ahead of us?" But fifteen minutes later the Albert Nyanza was below them. All came to kiss my hands in recognition of my prophecies. Our position was 5,200 feet above the sea, the lake 2,900 feet below us. We were then in 1° 20' north latitude. The south end of the Nyanza lay mapped out about six miles south of this position.

Right across to the eastern shore was the tributary Semliki, flowing from the southwest. As we descended, the natives 100 feet below poured in on us, but their primitive style of fighting did not delay us. The rear guard fought them until we were within a few hundred feet of the plain, where we camped. We were attacked during the night, but we drove them away.

At 9 o'clock next morning we reached the village of Kakongo, but were unable to make friends with the inhabitants.

They would not be friendly, because, never having heard of a white man, they feared we would scare their cattle away. They would not accept any presents, or indeed have anything to do with us, although they were perfectly civil. They gave us water to drink, but nothing else. They showed us the path, and we camped half a mile from the lake.

My couriers from Zanzibar evidently had not arrived, or Emin Pasha would have been at the south-eastern shore of the lake. My boat was 190 miles distant, and there was no tree in sight large enough to make a canoe. We had used nearly all our remaining ammunition in the five days' fighting on the plain, and a long fight must exhaust our stock. There was no feasible plan except to retreat to Ibwiri, build a fort, and send for stores and ammunition, sending the boat after it should have been brought from Kilinga-Longa's to search for Emin. This plan, after a long discussion, we resolved upon. On the 15th we marched to Kavalla, on the west side of the lake. The Kakongo natives shot arrows into our bivouac.

We resumed the march by night, and by 10 A. M. of the 16th, we had gained the crest of the plateau, the natives following us until they became tired. On Jan. 7 we were in Ibwiri again, Lieut. Stairs being sent to Kilinga-Longa's to bring stores. Only 11 men were brought into the fort out of 38 sick, the rest having died or deserted. Soon after Stairs's departure I was attacked with gastritis and an abscess under the arm. I recovered, and after forty-seven days set out for Albert Nyanza on April 2.

April 26, we again arrived in Mazamboni's country. He consented to make a blood brotherhood with me, though this time I had fifty less rifles than on my former visit. Mazamboni's example was taken by the other chiefs, and we had little difficulty, though we lived royally.

One day's march from the lake, natives came from Kavalli, saying that a white man named "Malejja" had given to their chief a black packet for Stanley, his son. From their stories about "big ships as large as islands filled with men," it was evident that they meant Emin Pasha. The next day's march brought them to the chief, who gave Stanley a note from Emin covered with a strip of black American oil-cloth. The note said that "as there had been a native rumor to the effect that a white man had been seen at the south end of the lake, he had gone in his steamer to make inquiries, but had been unable to obtain reliable information, as the natives were terribly afraid of Kabba-Rega, King of Unyoro, and connected every stranger with him." He begged them to remain until he could com-

municate with them. Mr. Jephson was dispatched the next day with the boat, and on the 29th of April arrived at the camp with the Pasha and Signor Casati. They were together until May 25, when Stanley returned to Fort Bodo, which had been left in charge of Capt. Nelson and Lieut. Stairs. The latter had been to Ugarrowwa's to bring on the 56 men who were left there sick, but all were dead but 16.

Leaving some of his men in garrison, Stanley pushed on toward Yambuya with 111 Zanzibaris and 101 of the Pasha's people, to bring up the vast stores left with Maj. Barttelot, from whom he had heard nothing. On Aug. 17 he met the rear column at Bonalya, or, as the Arabs called it, Unarya. Here he found in charge Mr. Bonney, who told him that Maj. Barttelot had been shot by the Manyuema a month before, that Mr. Jamieson has gone to Stanley Falls to try to get more men from Tippu Tib, Mr. Troup had gone home invalided, and Mr. Ward was at Bangala, 600 miles below on the Congo.

I found the rear column a terrific wreck. Out of 257 men only 71 remaining; out of 71 only 52 fit for service, and these were mostly scarecrows. According to Bonney, during the thirteen months and twenty days that had elapsed since I left Yambuya, the record is one of disaster, desertion, and death. I have not the heart to go into details, many of which are incredible, and indeed I have not time. There are still far more loads than I can carry. At the same time articles needful are missing. Deserters from the advance column reached Yambuya to spread the report that I was dead. They had no papers, but officers accepted the report of deserters as a fact.

In January, at an officers' mess meeting, Mr. Ward proposed that my instructions should be canceled. The only one who appears to have dissented was Mr. Bonney. Accordingly, my personal kit, medicines, soap, candles, and provisions were sent down the Congo as superfluities. Thus, after making an immense personal sacrifice to relieve them and cheer them up, I find myself naked and even deprived of the necessities of life in Africa. But, strange to say, I have kept two hats, four pairs of boots, a flannel shirt, and I propose to go back to Emin Pasha and across Africa with this truly African kit.

I pray you to say that we were only eighty-two days from Albert lake to Bonalya and sixty-one from Fort Bodo. The distance is not very great. It is the people who fail one. Going to Nyanza we felt as though we had the tedious task of dragging them. In returning, each man knew the road and did not need any stimulus. Between Nyanza and here, we only lost three men, one by desertion. I brought 131 Zanzibaris here, I left 59 at Fort Bodo, total 190 men out of 389; loss 50 per cent. At Yambuya I left 257 men. There are only 71 left, 10 of whom will never leave the camp. Loss over 70 per cent. This proves that though the sufferings of the advance were unprecedented, the mortality was not so great as in camp at Yambuya. The survivors of the march are all robust, while the survivors of the rear column are thin and most unhealthy looking.

Stanley says his party was in one unbroken forest for one hundred and sixty days. The grass land was traversed in eight days. North and south the forest area extends from Nyangwe to the southern borders of the Monbottu. From the Congo it extends east to about 29° east longitude, and how far west beyond the Congo is unknown. The tract described covers 246,000 square miles, and north of the Congo is an additional tract of 20,000 square miles between Upoto and the Arwimi. Between Yambuya and the Ny-

anza five distinct languages were met with among the natives.

The land slopes from the plateau above the Nyanza to the Congo from 5,500 to 1,400 feet above the sea level. North and south of their track through the grass land the surface was much broken by cones or isolated summits or ridges. The highest points to the northward were not more than 6,000 feet; but bearing 215 degrees magnetic, about 50 miles from the camp on the lake they saw a mountain, with snow-covered summit, towering to a height of 17,000 or 18,000 feet above the sea.

I have met with only three natives who have seen the lake toward the south. They agree that it is large, but not so large as the Albert Nyanza. The Aruwimi becomes known as the Suhali about 100 miles above Yambuya. As it nears the Nepoko it is called the Nevoa; beyond its confluence with the Nepoko it is known as the No Welle; 300 miles from the Congo it is called the Ituri, which is soon changed into the Ituri, which name it retains to its source. Ten minutes' march from the Ituri waters we saw the Nyanza, like a mirror in its immense gulf.

Mr. Stanley reorganized his force, gathering those that were left of the rear column and such Manyema as offered their services, and started on the return journey to the Albert lake. It had been arranged that Emin and Mr. Jephson should start from the lake about July 26 with a sufficient escort to conduct the garrison of Fort Bodo to a new station to be built near Kavalli, on the southwest side of the lake, thus relieving Stanley of the necessity for making another journey to Fort Bodo.

On Oct. 30, having cast off the canoes, the land march began in earnest, and two days later we discovered a large plantain plantation in charge of the dwarfs. The people flung themselves on the plantains to make as large a provision as possible for the dreaded wilderness ahead of us. The most enterprising always secured a fair share, and twelve hours later would be furnished with a week's provision of plantain flour. The feeble and indolent reveled for the time being on abundance of roasted fruit, but always neglected providing for the future, and thus became victims to famine.

After moving from this place ten days passed before we reached another plantation, during which time we lost more men than we had lost between Bonalya and Ugarrowwa's. The small-pox broke out among the Manyema and their followers, and the mortality was terrible. Our Zanzibaris escaped this pest, however, owing to the vaccination they had undergone on board the "Madura."

We were now about four days' march above the confluence of the Ihuru and Ituri rivers and within about a mile from the Ihuru. As there was no possibility of crossing this violent and large tributary of the Ituri or Aruwimi, we had to follow its right bank until a crossing could be discovered.

Four days later we stumbled across the principal village of a district called Andikumu, surrounded by the finest plantation of bananas and plantains we had yet seen, which all the Manyema's habit of spoliation and destruction had been unable to destroy. Then our people, after severe starvation during fourteen days, gorged themselves to such excess that it contributed greatly to lessen our numbers. Every twentieth individual suffered some complaint which entirely incapacitated him from duty. The Ihuru river was about four miles south-southeast from this place, flowing from east-northeast, and about 60 yards broad and deep owing to the heavy rains.

From Andikumu, a six days' march northerly, brought us to another flourishing settlement called In-

deman, situated about four hours' march from the river we supposed to be the Ihuru. Here I was considerably nonplussed by the grievous discrepancy between native accounts and my own observations. The natives called it the Ihuru river, and my instruments and chronometer made it very evident that it could not be the Ihuru we knew. Finally, after capturing some dwarfs, we discovered that it was the right branch of the Ihuru river, called the Dui river, this agreeing with my own views. We searched and found a place where we could build a bridge across. Mr. Bonney and our Zanzibar chief threw themselves into the work, and in a few hours the Dui river was safely bridged and we passed from Indeman into a district entirely unvisited by the Manyema.

In this new land, between right and left members of the Ihuru, the dwarfs called Wambutti were very numerous, and conflicts between our rear guard and these crafty little people occurred daily, not without harm to both parties. Such as we contrived to capture we compelled to show the path, but invariably for some reason they clung to east and east-northeast paths, whereas my route required a southeast direction because of the northing we had made in seeking to cross the Dui river. Finally, we followed elephant and game tracks on a southeast course, but on Dec. 9 we were compelled to halt for a forage in the middle of a vast forest, at a spot indicated by my chart to be not more than two or three miles from the Ihuru river, which many of our people had seen while we resided at Fort Bodo.

I sent 150 rifles back to a settlement that was 15 miles back on the route we had come, while many Manyema followers also undertook to follow them.

During the absence of these foragers, which was inexplicably long, the camp was a scene of hunger and misery. Mr. Bonney was accordingly left in charge of the camp, with a small force, besides "twenty-six feeble sick wretches already past all hope, unless food could be brought to them within twenty-four hours," while the others set out to hunt for the missing foragers.

In a cheery tone, though my heart was never heavier, I told the forty-three hunger-bitten people that I was going back to hunt up the missing men; probably I should meet them on the road, but if I did that they would be driven on the run with food to them. We traveled nine miles that afternoon, having passed several dead people on the road, and early on the eighth day of their absence from camp met them marching in an easy fashion, but when we were met the pace was altered to a quick step, so that in twenty-six hours from leaving Stawalin camp we were back with a cheery abundance around, gruel and porridge boiling, bananas boiling, plantains roasting, and some meat simmering in pots for soup. This has been the nearest approach to absolute starvation in all my African experience. Twenty-one persons succumbed in this dreadful camp.

Having a presentiment that the garrison had not been removed from Fort Bodo, Stanley crossed the Ihuru and proceeded thither, when he found the 51 of the 59 he had left there, not a word having been received from Emin or Mr. Jephson. The whole force therefore set out for Kavalli; 124 were left in camp on the Ituri, and the others pushed forward, hearing nothing from Lake Albert till they reached Gaviras, where they were met by messengers bearing letters, informing them that a rebellion had broken out at Dufflé, and Emin and Jephson had been made prisoners. Plans had been made to entrap and rob Stanley on his arrival. In the midst of the rebellion a force of Mahdists arrived at Lado, and their general sent

up three Peacock dervishes to demand the instant surrender of the country. The rebels seized and threw them into prison, and decided on war. The Mahdists captured Regaf, killing some and making many prisoners, and causing general consternation. This attack caused the people to change their minds about Stanley, to whom they began to look to get them out of their difficulties. The Mahdists took Kirri and Muggi, and besieged Dufflé, but were repulsed by the 500 soldiers, and obliged to fall back to Regaf and send to Khartoum for re-enforcements. The pasha was still unwilling to leave his people, trusting that the invasion would put an end to the rebellion. On this point Stanley says :

If you will bear in mind that on Aug. 17, 1888, after a march of 600 miles to hunt up the rear column, I met only a miserable remnant of it, wrecked by the irresolution of its officers, neglect of their promises, and indifference to their written orders, you will readily understand why, after another march of 700 miles, I was a little put out when I discovered that, instead of performing their promise of conducting the garrison of Fort Bodo to the Nyanza, Mr. Jephson and Emin Pasha had allowed themselves to be made prisoners on about the very day they were expected by the garrison of Fort Bodo to reach them. It could not be pleasant reading to find that, instead of being able to relieve Emin Pasha, I was more than likely, by the tenor of these letters, to lose one of my own officers, and to add to the number of the Europeans in that unlucky Equatorial Province. However, a personal interview with Mr. Jephson was necessary, in the first place, to understand fairly or fully the state of affairs.

On Feb. 6, 1888, Mr. Jephson arrived in the afternoon at our camp at Kavalli on the plateau. I was startled to hear Mr. Jephson, in plain, undoubting words, say : "Sentiment is the pasha's worst enemy ; no one keeps Emin Pasha back but Emin Pasha himself." This is a summary of what Mr. Jephson had learned during nine months from May 25, 1888, to Feb. 6, 1889. I gathered sufficiently from Mr. Jephson's verbal report to conclude that during nine months neither the pasha, Signor Casati, nor any man in the province had arrived nearer any other conclusion than that which was told us ten months before : thus : The pasha.—If my people go, I go. If they stay, I stay. Signor Casati.—If the governor goes, I go. If the governor stays, I stay. The faithful.—If the pasha goes, we go. If the pasha stays, we stay.

But the condition of affairs gave Stanley the hope that he might at last receive definite answer. He sent orders for the men left behind in camp to be brought on to Kavalli, that the expedition might be concentrated and ready for any emergency, and sent dispatches to the pasha asking how he could best be aided. It was suggested that the simplest plan would be for him to seize a steamer and bring the refugees to Stanley's old camp on the lake.

On Feb. 13 the surprising news was received that Emin Pasha was at anchor below the camp, having arrived with two steamer-loads of people desirous of leaving the country. They were to return for another company as soon as the first should be provided for. It was found that the rebel soldiers had been led to Regaf to attempt its recapture from the Mahdists, and had been defeated ; among the killed were some of the pasha's worst enemies. The soldiers were panic-stricken, and declared they would not fight unless Emin were set at liberty, and this accordingly had been done. It was learned from Mr. Jephson that the province had been in a dis-

turbed state for some time, and that the pasha's greatest trouble arose, not from the outside, but from internal discontent. Mr. Jephson added :

Before closing my report I must bear witness to the fact that in my frequent conversations with all sorts and conditions of the pasha's people I heard, with hardly any exceptions, only praise of his justice and generosity to his people, but I have heard it suggested that he did not hold his people with a sufficiently firm hand.

But Stanley found to his consternation that Emin still had scruples about leaving his province. He said he thought Selim and the Egyptians would return to his standard, and it looked like desertion to leave his people at the Mahdi's mercy. Stanley called a council of war, and submitted the situation to his officers. They unanimously recommended that the expedition move on for Zanzibar on April 10, with such persons as chose to accompany it. This was the answer returned to Emin, and when April 10 arrived the expedition moved. Emin and about 400 followers decided to go with it. The very next day Stanley was taken severely ill, and his death was seriously feared, but Dr. Parke pulled him through, and a month later the journey was resumed.

Then little by little I gathered strength and ordered the march for home. Discovery after discovery in the wonderful region was made. The snowy range of Ruwenzori, the "Cloud King" or "Rain Creator," the Semliki river, the Albert Edward Nyanza, the Plains of Usongora, the salt lakes of Kativé, the new peoples, Wakonju of the Great Mountains, the dwellers of the rich forest region, the Awamba, the fine-featured Wasongora, the Wanyoro bandits, and then the Lake Albert Edward tribe, and the shepherd race of the eastern uplands, the Wanyankori, besides the Wanya-ruwamba, and the Wazinja, until at last we came to a church whose cross dominated a Christian settlement, and we knew that we had reached the outskirts of blessed civilization. . . .

The route I had adopted was one which skirted the Balegga mountains, at a distance of 40 miles or thereabouts from the Nyanza. The first day was a fairish path, but the three following days tried our Egyptians sorely, because of the ups and downs and the breaks of cane grass. On arriving at the southern end of these mountains we were made aware that our march was not to be uninterrupted, for the King of Unyoro had made a bold push, and had annexed a respectable extent of country on the left side of the Semliki river, which embraced all the open grass land between the Semliki river and the forest region. Thus, without making an immense *détour* through the forest, which would have been fatal to most of the Egyptians, we had no option but to press on despite Kabba Rega and his Warasura. This latter name is given to the Wanyoro by all natives who have come in contact with them. The first day's encounter was decidedly in our favor, and the effect of it cleared the territory as far as the Semliki river free of the Warasura.

Meantime we had become aware that we were on the threshold of a region which promised to be very interesting, for daily as we advanced to the southward the great snowy range which had so suddenly arrested our attention and excited our intense interest (on May 1, 1888) grew larger and bolder into view. It extended a long distance to the southwest, which would inevitably take us some distance off our course unless a pass could be discovered to shorten the distance to the countries south. At Buhobo, where we had the skirmish with Kabba Rega's raiders, we stood on the summit of the hilly range which bounds the Semliki valley on its northwest and southwest sides. On the opposite side rose Ruwenzori, the Snow mountain,

and in its enormous eastern flank, which dipped down gradually until it fell into the level, and was seemingly joined with the table land of Unyoro. The humpy western flank dipped down suddenly, as it seemed to us, into lands that we knew not by name as yet. Between these opposing barriers spread the Semliki valley, so like a lake at its eastern extremity that one of our officers exclaimed that it was the lake, and the female followers of the Egyptians set up a shrill *lululus* on seeing their own lake, the Albert Nyanza, again. With the naked eye it did appear like the lake, but a field glass revealed that it was a level grassy plain, white with the ripeness of its grass. Those who have read Sir Samuel Baker's "Albert Nyanza" will remember the passage wherein he states that to the southwest the Nyanza stretches "illimitably." He might be well in error at such a distance, when our own people, with the plane scarcely four miles away, mistook the plain for the Nyanza. As the plain recedes southwesterly the bushes become thicker, finally acacias appear in their forests, and beyond these, again, the dead black thickness of an impenetrable tropical forest; but the plain, as far as the eye could command, continued to lie ten to twelve miles wide between these mountain barriers, and through the center of it, sometimes inclining toward the southeast mountains, sometimes to the southwestern range, the Semliki river pours its waters toward the Albert Nyanza.

In two marches from Buhoho we stood upon its banks, and alas for Mason Bey and Gessi Pasha, had they but halted their steamers for half an hour to examine this river, they would have seen sufficient to excite much geographical interest, for the river is a powerful stream from eighty to one hundred yards wide, averaging nine feet depth from side to side, and having a current of from three and a half knots to four knots, in size about equal to two thirds of the Victoria Nile.

As we were crossing this river the Warasura attacked us from the rear with a well-directed volley, but fortunately the distance was too great. They were chased for some miles, but, fleet as grayhounds, they fled, so there was no casualties to report on either side.

We entered the Awamba country on the eastern shore of the Semliki, and our marches for several days afterward were through plantain plantations which flourished in the clearings made in this truly African forest. Finally we struck the open again immediately under Ruwenzori itself. Much, however, as we had flattered ourselves that we should see some marvelous scenery, the Snow mountain was very coy, and hard to see. On most days it loomed impending over us like a tropical storm cloud ready to dissolve in rain and ruin on us. Near sunset a peak or two here, a crest there, a ridge beyond, white with snow, shot into view, jagged clouds whirling and eddying round them, and then the darkness of night. Often at sunrise, too, Ruwenzori would appear fresh, clean, brightly pure; profound blue voids above and around it; every line and dent, knoll, and turret-like crag deeply marked and clearly visible; but presently all would be buried under mass upon mass of mist until the immense mountain was no more visible than if we were thousands of miles away. And then, also, the Snow mountain, being set deeply in the range, the nearer we approached the base of the range the less we saw of it, for higher ridges obtruded themselves and barred the view. Still we have obtained three remarkable views—one from the Nyanza Plain, another from Kavalli, and a third from the South Point.

In altitude above the sea I should estimate it to be between 18,000 and 19,000 feet. We can not trust our triangulations, for the angles are too small. When we were in positions to ascertain it correctly the inconstant mountain gathered his cloudy blankets around him and hid himself from view; but a clear view from the loftiest summit down to the lowest reach of snow, obtained from a place called Karimi, makes me

confident that the height is between the figures stated above.

It took us nineteen marches to reach the southwest angle of the range, the Semliki valley being below us on our right, which, if the tedious mist had permitted, would have been exposed in every detail. That part of the valley traversed by us is generally known by the name of Awamba, while the habitable portion of the range is principally denominated Ukonju. The huts of these natives, the Bakonju, are seen as high as 8,000 feet above the sea.

Almost all our officers had at one time a keen desire to distinguish themselves as the climbers of these African Alps, but, unfortunately, they were in a very unfit state for such a work. The pasha only managed to get 1,000 feet higher than our camp. Lieut. Stairs reached the height of 10,677 feet above the sea, but had the mortification to find two deep gulfs between him and the Snowy mount proper. He brought, however, a good collection of plants, among which were giant heather, blackberries, and bilberries. The pasha was in his element among these plants, and has classified them.

The first day we had disentangled ourselves of the forest proper and its outskirts of struggling bush, we looked down from the grassy shelf below Ruwenzori range and saw a grassy plain, level, seemingly, as a bowling-green, the very duplicate of that which is seen at the extremity of the Albert Nyanza, extending southerly from the forests of the Semliki valley. We then knew that we were not far from the Southern lake, discovered by me in 1877.

Under guidance of the Wakonju, I sent Lieut. Stairs to examine the river said to flow from the Southern Nyanza. He returned next day reporting it to be the Semliki river narrowed down to a stream 42 yards wide and about 10 feet deep, flowing, as the canoe-men on its banks said, to the Nyanza Utuku, or Nyanza of Unyoro, the Albert Nyanza. Besides native reports he had other corroborative evidences to prove it to be the Semliki.

On the second march from the confines of Awamba we entered Usongora, a grassy region as opposite in appearance from the perpetual spring of Ukonju as a drouthy land could well be. This country bounds the Southern Nyanza on its northern and northwestern side.

Three days later, while driving the Warasura before us, or rather as they were self-driven by their own fears, we entered soon after its evacuation the important town of Kative, the headquarters of the raiders. It is situated between an arm of the Southern Nyanza and a salt lake about two miles long and three quarters of a mile wide, which consists of a pure brine of a pinky color, and deposits salt in solid cakes of salt crystals. This was the property of the Wasongora, but the value of its possession has attracted the cupidity of Kabba Rega, who reaps a considerable revenue from it. Toro, Aukori, Mpororo, Ruanda, Ukonju, and many other countries demand the salt for consumption, and the fortunate possessor of this inexhaustible treasure of salt reaps all that is desirable of property in Africa in exchange, with no more trouble than the defense of it.

Our road from Kative lay east and northeast to round the bay-like extension of the Nyanza, lying between Usongora and Unyampaka, and it happened to be the same taken by the main body of the Warasura in their hasty retreat from the salt lake. On entering Uhaiyana, which is to the south of Toro and in the uplands, we had passed the northern head of the Nyanza, or Beatrice gulf, and the route to the south was open, not, however, without another encounter with the Warasura.

A few days later we entered Unyampaka, which I had visited in January, 1876. Ringi, the king, declined to enter into the cause of Unyoro, and allowed us to feed on his bananas unquestioned. After following the lake shore until it turned too far to the southwest, we struck for the lofty uplands of Aukori, by the natives of whom we were well received—pre-

eeded as we had been by the reports of our good deeds in relieving the salt lake of the presence of the universally obnoxious Warasura.

If you draw a straight line from the Nyanza to the Uzinja shores of the Victoria lake it would represent pretty fairly our course through Aukori, Karagwe, and Uhaiya to Uzinja. Aukori was open to us because we had driven the Wanyoro from the salt lake. The story was an open sesame; there also existed a wholesome fear of an expedition which had done that which all the power of Aukori could not have done. Karagwe was open to us because free trade is the policy of the Wanyanbu, and because the Waganda were too much engrossed with their civil war to interfere with our passage. Uhaiya admitted our entrance without cavil, out of respect to our numbers, and because we were well introduced by the Wanyanbu, and the Wakwiya guided us in like manner to be welcomed by the Wazinja. Nothing happened during the long journey from the Albert lake to cause us any regret that we had taken this straight course, but we have suffered from an unprecedented number of fevers. We have had as many as 150 cases in one day. Aukori is so beswept with cold winds that the expedition wilted under them. Seasoned veterans like the pasha and Capt. Casati were prostrated time after time, and both were reduced to excessive weakness like ourselves. Our blacks, regardless of their tribes, tumbled headlong into the long grass to sleep their fever fits off. Some after a short illness died; the daily fatigues of the march, an ulcer, a fit of fever, a touch of bowel complaint, caused the Egyptians to hide in any cover along the route, and, being unperceived by the rear guard of the expedition, were left to the doubtful treatment of natives with whose language they were utterly ignorant. In the month of July we lost 141 of their number in this manner.

Out of respect to the first British prince, who has shown an interest in African geography, we have named the Southern Nyanza, to distinguish it from the other two Nyanzas, the Albert Edward Nyanza. It is not a very large lake. Compared to the Victoria, the Tanganyika, and the Nyassa, it is small, but its importance and interest lie in the fact that it is the receiver of all the streams at the extremity of the south-western, or left, Nile basins, and discharges those waters by one river—the Semliki—into the Albert Nyanza, in like manner as Lake Victoria receives all streams from the extremity of the south-eastern, or right, Nile basin, and pours those waters by the Victoria Nile into the Albert Nyanza. These two Niles, amalgamating in Lake Albert, leave this under the well-known name of White Nile.

It is thus evident that the geographical results of this memorable expedition are of equal importance to the results in any other direction. Mr. Stanley has been enabled to solve some important puzzles in African geography. He was the discoverer of the Congo, and now he has been able to discover one of the remotest sources of the Nile and lay down the water-parting between the two great rivers. From Yambuya to the Albert Nyanza, and thence to Msalalal, he has laid down an immense stretch of what is essentially new country, filled in its great physical features, and collected far more precise information about the varied tribes of people than ever he had before. The Ruwenzori or Ruwenzura mountains Mr. Stanley believes to be the long-lost and wandering "Mountains of the Moon" of the old geographers, which were variously put down on the maps.

One of the latest discoveries was that of an extension of the Victoria Nyanza toward the southwest. Its utmost southerly reach is to $2^{\circ} 48'$ south latitude, thus bringing the lake to

within 155 miles of Lake Tanganyika. The area of the extension is 26,900 square miles.

One of the most significant of recent African discoveries is that of a new lake, about 300 miles northeast of Victoria Nyanza, in the Galla country. The discoverer is the Hungarian traveler, Count Samu Telcki. It was called Basso-Norak, but has been renamed Lake Rudolf. It is 162 miles long and about 20 broad. It is supposed to be the one known from reports of the natives as Lake Samburu, and lies in a nearly north and south direction between $2^{\circ} 18'$ and $4^{\circ} 42'$ north latitude. The region about its shores is dry, and the vegetation scanty. A few Gallas on the banks of the lake and its tributaries live by fishing.

M. Borelli, on comparing his discoveries, especially with regard to the River Omo, with those of Count Teleki and Lieut. von Höhnel, concludes that the lake is the same that he located southward as receiving the waters of the River Omo, which has been generally known as Lake Samburu. As a matter of fact, the lake receives on the north a river named Niannam, which M. Borelli maintains is his Omo; it also receives another, named Bass, not seen by the other explorers. The mountains they saw on the north northeast, named Aro, are those called Ara or Aro by him. The Samburu, Basso-Norak, and Prince Rudolf are one and the same lake, receiving the Omo and having no outlet, according to MM. Teleki and Höhnel, who say it is about 1,970 feet above sea-level, while the Victoria Nyanza is 3,800 feet.

Count Teleki ascended Mount Kenia to a height of 15,000 feet on his journey northward. Mt. Kilimandjaro, which was ascended to a great height by Dr. Meyer, was ascended again this year by Herr Otto Ehlers. He describes the ice-wall, the foot of which was reached by Dr. Meyer (see "Annual Cyclopædia" for 1887, p. 304), as being the edge of a cap of *névé*, which covers the summit, and has been partly cleared on the north side by the action of wind and radiation, but on the south side forms apparently a glacier issuing from the crater-trough at the summit.

From the missionaries in eastern equatorial Africa it is learned that the revolution in Uganda of October, 1888, which deposed Mwanga and expelled the missionaries from the country, has continued to disturb the land at intervals ever since, and that disaffection is increasing among the people as the result of Arab influence at the Court of Uganda.

The sources of the Zambesi have to some extent been explored by F. S. Arnot, a missionary, who traveled across the country from Bihé and Benguella to the Garenganze country, where are the Katanga copper-mines and the cave-men described by Livingstone. Avoiding the routes taken by other travelers, he found that the Zambesi does not come from the Dilolo lake, but receives the main part of its waters from an eastern arm, the Liba, which has its source in a mountain probably identical with Livingstone's Mount Kaomba. From Kwanza to the Lukoleshe, a tributary of the Lualaba, stretches the high table-land, and chains of low hills form the watershed between the various rivers. The sovereignty of Msiri extends from the Lualaba to the Luapula, and to the Mochinga mountains on the south; but his influence reaches beyond these borders, including the

territory on the Meru lake that belonged in Livingstone's time to the powerful Casembe. Mr. Arnot has been furnished with means for prosecuting his work still farther; and the Royal Geographical Society intrusted to him the proceeds of the Murchison Grant for 1889, to be used in procuring a suitable present for Chitambo, chief of the Ilala country, in consideration of the assistance given by him to those who had charge of the work of carrying Livingstone's body and effects to the coast.

The Lomami, one of the great southern tributaries of the Congo, was explored for some distance by Rev. Mr. Grenfell; but its upper reaches were not visited until the last year. Mr. Alexander Delcommune, a Belgian, ascended it in a steamer from its mouth below Stanley Falls up to about the fourth degree of south latitude. The natives told him that he was here but three days' journey from Nyangwe. It is possible that this is the same river seen by Cameron and crossed by Wissmann at six degrees south latitude. The discovery will prove of practical importance if it provides an easy route to Nyangwe, avoiding the obstruction of the Congo at Stanley Falls.

The survey for the Congo railroad is completed, and the work of building is begun. The road will connect Matadi, the head of navigation on the lower river, with Stanley Pool, above which point are navigable waterways aggregating 6,000 miles. In order to avoid the mountainous lands which extend almost unbrokenly along the river in this cataract region, it was found necessary to lay the route for the most part about thirty miles south of the river.

Much interest is manifested in the efforts to put an end to the slave-trade that is carried on by the Arabs who go through Central Africa with their caravans, ostensibly to buy ivory, but really to capture slaves. As another means of carrying civilization into the heart of the Dark Continent and abolishing the horrible trade in slaves, a project is on foot to make a highway through Africa, from 200 to 400 miles inland from the eastern coast. This line would begin at Guakim, on the Red Sea, and run inland by wagon-road to Berber on the Nile, then by steamers up that river, then by portages to the Victoria Nyanza and Lake Tanganyika and the Upper Zambesi. In time railroads could be substituted for wagon-roads, and connection made with the west coast by way of the Congo. It is believed that this line could be effectively policed and the slave-trade broken up.

Great excitement has prevailed in England and in Portugal over a dispute between the two governments in regard to their claims to territory in southeastern Africa. (See CAPE COLONY, page 107.)

A few months ago Mr. Holmwood, the British Consul-General at Zanzibar, visited Kilima-Njaro at the request of Lord Salisbury to inspect the region that has been placed under British influence. He reported after his return that in his opinion these elevated inland regions are well worth possessing. On the plateau east and north of the great mountain he says the thermometer ranges from 58° to 70°, and very rarely rises to 80°. This region is separated from the coast by a wide desert tract, and most of the products

which Holmwood and others think would thrive on the plateaus would be of little value until easy communication is established with the sea. The route from the Indian Ocean to Victoria Nyanza through the country the British will attempt to develop is 200 miles shorter than any other.

The explorations of Lieut. Van Gèle on the Mobangi, the great northern tributary of the Congo, leave no doubt that it is identical with the Welle Makua, whose course and destination has long been one of the problems of African geography. Lieut. Van Gèle, traveling from the west, reached a point only one degree from that reached by Dr. Junker on the Welle traveling eastward, both being in latitude 4° 20' north.

M. Camille Douls, whose explorations in the Sahara have been chronicled in previous volumes of this work, set out in June, 1888, with the object of crossing the desert and reaching Timbuctoo. He is reported to have been murdered by his guides in the Sahara between the oases of Alouef and Akabli. He was born at Bordes, in Aveyron, in 1864.

Arctic.—It is reported that a new island was found in the Arctic Ocean by Capt. E. H. Johannesen in the summer of 1887. It is east of Spitzbergen in lat. 80° 10' N. and long. 32° 3' E., and is a table-land 2,100 feet high. He called it New Island. It is believed to be the same as Hvide, seen by Capt. Kjeldsen and by Capt. Sørensen in August, 1884. This discovery confirms the existence of an archipelago extending from Spitzbergen to Franz Josef Land; such an archipelago would prevent the polar ice from descending into Barents Sea, and consequently would have a great influence on the climate of the north of Europe.

Australia.—Reporting an expedition to examine the region of the Upper Gascoyne and Ashburton rivers in West Australia, Ernest Favenc says that several large rivers tributary to the Ashburton were discovered, and were named the Cunningham, the Jackson, and the James. They run through a magnificent pastoral country, which will soon become valuable for sheep-runs. He says: "We found the physical features of the country different entirely from the conjectural ones on some of the Western Australian maps, the supposed course of the Upper Ashburton being from 20 to 30 miles out of position by the observations taken by Mr. Cuthbertson. The geological formation of the Ashburton is against the likelihood of any valuable mineral deposits being discovered in the future; on the head of the Gascoyne, however, there is every prospect of the country repaying a careful search for gold. There is a good underground supply of water on the Gascoyne, at a depth of from 12 to 15 feet. The aborigines of this part are of a peculiarly degraded type, being greatly below the average of the natives of the northern and eastern coasts in intelligence."

Bolivia.—The Gran Chaco, that great inland tract of country lying between 29° south latitude and the Tropic of Capricorn, and belonging to Argentina, Bolivia and Paraguay, has never been fully explored. It has two great rivers flowing into the Paraguay—the Pilcomayo and the Bermejo, and at various times many attempts have been made to explore and open up these rivers as a natural highway from this great interior to the Atlantic coast. The latest one re-

ported was an expedition to ascend the Bermejo (or Vermejo) under Capt. John Page, of the Argentine navy. He found the lower course of the stream obstructed at three points by the wrecks of steamers that had attempted the passage before him. Three hundred miles above the mouth is the end of the Teuco, the new channel opened by the waters of the Bermejo when they left their old bed in 1870. This original channel is still covered at flood time; and the annual freshets have brought down great quantities of detritus to the valley, so that the tops of large trees are seen just rising above the surface. It is this shifting of the channels and filling up of the beds of the rivers with drift that renders the navigation so uncertain and dangerous, and at the same time by contributing to the great fertility of the soil, has made access to the region so desirable. Colonies have already been settled in the Austral, or southern Chaco, where the timber and sugar industries are carried on, and many native laborers are employed. The lands on both sides of the Bermejo for 400 miles above its mouth have been conceded by the Government for various enterprises, many of which are to be carried on with English capital. The Argentine Government sent Captain Page to England to obtain steamers for squadrons on the Bermejo and the Pilcomayo, and a special vessel to clear them of obstruction, so that it is to be expected that the region of the upper Pilcomayo, the section between 61° and 62° west longitude and 22° and 23° south latitude, where many expeditions have failed and some have been entirely lost, will not long remain an unknown land. In regard to the region he visited Capt. Page says:

It is a safe prediction that this region has a great future, possessing as it does an equable climate, tempered by the prevailing southeast and southwest winds, with just enough of the warm and relaxing norther to give a zest to the enjoyment of the others, and stimulate vegetable growth; a climate which throughout the whole extent of its territories suits admirably the sons of southern Italy, and in its southern section has been proved to suit the hardier men of England and the United States. The soil is good and compares well with the lands of southern and western Buenos Ayres, having in its favor, for agricultural purposes, a far better climate, and is adapted to the growth of cotton, tobacco, the castor-oil plant, the olive, barley, sorghum, Indian corn, rice, the manioc, and many other products of temperate and inter-tropical climates. Cattle thrive in all the Chaco, attaining an extraordinary development in size, especially among the Indian herds, where they depend exclusively upon the grasses and wild fruits—such as the palm and locust. The grasses are varied and abundant, and include many of the species highly thought of in Buenos Ayres, which is, *par excellence*, the cattle-growing section just now of the Argentina."

Viscount de Brettes has successfully made the journey, it is reported, through the northern Gran Chaco, traversing 186 miles of before unexplored ground. Starting from Apa, on the frontier of Paraguay and Brazil, he reached Bolivia in 21° 53' latitude and 63° 41' longitude, having crossed the territory of five native tribes.

The reports of Dr. Karl von den Steinen's second visit to the country of the upper Xingu afford some very interesting details regarding the wild tribes he visited in that unknown region. Nine of these tribes were visited, all of them living about the upper Xingu and its eastern trib-

utaries. They seem to be still in the stone age, the use of metal being entirely unknown among them. The forest trees are felled with stone axes; stone hammers and nails are used to perforate the shells with which they adorn themselves; their knives are the sharp teeth of the fish *piranha*; their planes are made of river shells. They have pet parrots and other birds, but other domestic animals, even dogs, are unknown among them. They raise Indian corn, cotton, tobacco, but no sugar-cane, rice, or bananas. They seemed to have no idea of a God, but believe in a soul which travels away during sleep and has a future existence. They know nothing of a world beyond their own territory. Dr. von den Steinen thinks most of the tribes are a fragment of the Carib nation, perhaps the descendants of those who stayed in the original home of the race while the others migrated to the northward. In a paper read before the Berlin Society, Dr. von den Steinen gave an account of the Bororo Indians, who were long the terror of the people of Matto Grosso, but were conquered in 1886 and are now settled in two military colonies on the São Lourenço. They are nominally Christian, but do not allow that fact to interfere with their traditional beliefs and practices. They think the soul survives after death and passes into the body of the arara parrot, though the souls of the wizard priests have a more splendid destiny, some of them passing into meteors. The medicine men have great influence among them, much more than among the Xingu tribes. "They treat their patients only in the night. Under the influence of loud groans and the fumes of tobacco the sick person is stupefied, and finally, as the cause of suffering, a small knuckle bone, a small fruit, or what not, is represented as having been extracted from the body. The incurable patient is strangled by his own relatives at the command of the doctor if at the appointed time death has not come to his release. The author himself saw a father strangle his child who had been lying for a long time in agony while the mother held the boy on her lap. The Bororo have the very peculiar custom of packing their dead in baskets, which is evidently the first stage of burial in urns. The bodies are first of all buried, but after several weeks are exhumed and then the bones are cleansed in the most careful manner, the operation being attended with great festivities and dances. They are then daubed over with red paint and finally covered in the most effective style possible with birds' feathers, especially with the plumes of the many-colored arara parrot, which are pasted on them, especially on the skull. The square basket in which the skeleton, even to the last knuckle bone, is packed is also covered with a casing of yellow and blue feathers. If the wife dies, the collective property of the married couple is burned. In great contrast with the noisy sports and dances which take place when the basket is being filled with the skeleton is the ceremony of the interment of the bones themselves. After the case containing them has remained several days in the house of the relatives it is buried quite quietly in a secret spot, the women being excluded from the ceremony." The expedition descended the Kulisén, an eastern tributary of the Xingu whose course has hitherto been un-

known. Other expeditions to these parts of Brazil are in progress or in contemplation with a view to opening those regions to communication with the civilized parts of the country. Capt. Mendonça's mission to the province Paraná was for the purpose of opening a route from Guarapuava to the mouth of the Iguassu and along its course, which is broken by rapids, to the celebrated waterfall Sette Quedas, and thence in the valley of the Piquiry to Guarapuava again. The investigations of A. R. P. Labre have resulted in a plan to unite by a railroad, 93 miles in length, the Madre de Dios, a tributary of the Beni, and the Aquiry, a tributary of the Purus, at the head of navigation in those streams, thus giving Peru and Bolivia communication with the Amazon without the proposed railroad around the rapids of the Madeira. Another tributary of the Purus, heretofore known as the Great Igáripé, has been called Chandless by the people, in honor of the English explorer. Its mouth is in latitude $10^{\circ} 30'$ south and longitude $71^{\circ} 20'$ west, a few miles below the river Manuel Urbano.

British America.—The question of the practicability of making Hudson Bay and Strait a portion of a commercial route to Europe connecting with a railroad from Winnipeg to Hudson Bay continues to be discussed with interest, for such a route would shorten the distance to the coast by one half, making thus a great difference in the cost of transporting the products of western British America to Europe. Commodore A. H. Markham, from a comparison of recorded voyages through the straits and some observations of his own, concludes that the passage may be safely and profitably made for at least five months during the year, but this can only be done with steamers especially adapted for ice navigation. Sailing ships have made the passage every year within a limited part of the season; and with better knowledge of the tides, closer observation of the peculiarities of formation of the floating ice, and the greater facilities offered by steam vessels it is believed that this great saving in distance between the grain fields of the western provinces and their European markets may doubtless be effected in the near future. Two hundred and seventy-five miles of railway would place Hudson Bay in connection with the inland waters; and it is estimated that with even but two and one half months of operation it would become a paying investment.

The interior of British Columbia in the northern part, almost unknown, has been surveyed by an expedition under Dr. G. M. Dawson. The survey includes an area of more than 6,000 square miles, a mountainous region in the main, though there are wide stretches of level or rolling land. The coast mountains extend to Telegraph creek on the Sitkine. Another range to the east of Dease lake is cut through by Dease river. Farther eastward another range gives rise to the streams that feed Pelly river and Frances lake. Dr. Dawson thinks the country capable of supporting as large a population as is found in corresponding latitudes in Europe. There are few, if any, glaciers among the mountains, and unlike the coast, which is very humid, the interior includes tracts of very dry country.

The Selkirk range, lying between the Columbia and Kootenie rivers in British Columbia, has

not, as yet, been fully explored. But a part of its great glacier region was visited in the summer of 1888 by Rev. W. Spotswood Green and Rev. Henry Swanzy, who gave names to several of the glaciers and made the first map of the region ever published. A portion of this map, which appeared in the "Proceedings of the Royal Geographical Society," for March, 1889, is here-with reproduced; and from Rev. Mr. Green's paper, read before the society, we take some of the details of his description of this wild region. Lying west of the Rocky mountains proper—that is, the range that forms the divide of the waters—the Selkirk range forms a marked contrast to that rough, abrupt, and rugged chain.

The Selkirk range on our right rose in gentle slopes and tiers of foot-hills, richly clad in pine forests, and cleft by far-reaching valleys, that of the Spillamachene river being the most important; while to the left the Rockies towered up from almost barren benches of white silt, with a sparse sprinkling of Douglas firs, in great bare precipices of pinkish-white limestone to rugged mountain forms at once. No large tributary joins the Columbia from that direction for eighty miles, only brooks half lost in the shingle brought down by spring torrents. . . . The peaks near the Hector Pass are probably as high as any in the range north of the United States boundary, Mount Lefroy and his neighbors rising 11,600 feet above the sea. The heights given for Mounts Hooker and Brown, near the Athabasca Pass, 17,000 and 16,000 feet, are no doubt exaggerated. From the high peaks of the Selkirks I could scan the Rockies for at least two hundred miles, and from the *arête* of Mount Sir Donald, what appeared to me to be the highest group of peaks, bore about due east. Mr. McArthur, the Government Surveyor at present engaged on the survey of the Rockies, expressed to me his opinion, that though his work has not, as yet, carried him so far, he has reached points where such high mountains must have been visible if they existed. I was not able to see as much of the glaciers in the Rockies as I should have wished; one at the head of the charming Lake Louise, at the foot of Mount Lefroy, I visited on our homeward journey in September. This glacier was formed almost entirely by avalanches falling from the hanging glaciers above. One of these occupied a bench, about a thousand feet up, on the vertical cliffs of Mount Lefroy, and during the day and night I was camped there alone, my companion having missed me in the forest, avalanches fell continually, waking the echoes with the roar of thunder. Strangely enough, they seemed to fall more frequently between two and five o'clock A. M., than at any other time. . . . The most remarkable glacier hitherto discovered on the Rockies is situated to the north of Hector Pass, and extends on a rocky bench, capping in some places the watershed, and surrounding the rugged peaks rising like islands from its midst, as a continuous snow field for about thirty miles. . . . Like the hanging glaciers on Mount Lefroy, it sends its ice down by avalanches, forming *glaciers remaniés* in the neighboring valleys.

The Selkirks, being much more difficult of access than the Rockies, by reason of the greater denseness of the vegetation, have been omitted from the survey now going on of that region. The great glacier, which is the chief source of the Illecillewaet river, is in sight from the railway. On the east is Mount Sir Donald, 10,645 feet in height, and on the west is a forest-clad ridge separating the glacier valley from a branch valley running up into the mountains for about four miles and headed by the Asulkan glacier, which takes its name from the Sushwap Indian word for the wild goats abounding there.



Describing the view from Mount Sir Donald, Mr. Green says the great snow field extended for over ten miles to the southward, while beyond it rose a seemingly endless series of snow-clad peaks with glacières in their hollows. Westward and northward similar peaks were seen, most of them rising to a height of 10,000 feet and few reaching 11,000. Eastward, beyond Beaver creek, a curious line of hills was seen, called by hunters the Prairie hills. Mr. Green describes their surface as looking very much as might a strip of cloth laid loosely over the rungs of a ladder lying flat upon the ground, and he ventures as a guess at their origin that they are markings of glacières which moved eastward toward the Columbia Valley from the high central range in glacial times, and that since the passing away of the ice, Beaver creek has sculptured out its valley at right angles to the former drainage lines.

To the glacier lying southwest of the great Illecellewaet snow field and south of the Asulkan

glacier, was given the name Geikie glacier, south of which is Dawson glacier on the northern side of Mount Dawson, and beyond is the Van Horne glacier. Describing the chief features of the range, Mr. Green says:

I have marked the main line of watershed of the Selkirk range on my map, and reference to it will show that it runs through Mount Cheops, Rogers Pass, and the Sir Donald range, and then cutting across the great Illecellewaet firm, continues its course along the peaks of the Dawson range. To the westward of this line there is a complexity of glacier-clad ranges, many peaks rising quite as high as those on the watershed, the valleys tending in a southwesterly course to the Columbia. To the eastward of the divide, a great change comes over the aspect of the region. The Prairie hills I have described above, and all the ranges between them and the Columbia, in its eastern portion, have a smooth rounded outline, forming a strong contrast to the ranges on the other side of the divide. There seem to be no glaciers, the ranges not being high enough for their formation.

Among the higher ranges an immense number of small glaciers lie in the hollows, and two extensive

snow fields are to be found within the limits of my map. One of these, being the source of the best known glacier in the whole region, on account of its being so clearly visible from the railway, I have called the great Illeccllewaet firn, after the river of which it is the true source. This ice field, probably five hundred feet thick, to the southward extends down into a valley as the Geikie glacier, and to the eastward, having been joined by ice streams coming from the Dawson range, it pours into Beaver Creek valley as the Deville glacier. All these glaciers show evidence of shrinking. An immense moraine exists in the valley below the Illeccllewaet glacier, where in ancient times it was met by an extension of the Asulkan glacier. Some of the blocks of quartzite in the moraine, are of huge dimensions, one I measured being 50 feet long, 24 feet thick, and 33 feet high. Another isolated boulder farther down the valley measured 91 by 40 by 44 feet. The Illeccllewaet glacier descends abruptly into the valley resembling a little the Rhône glacier; the ice is much broken, and is too steep to walk on. . . . By calculation we estimated that the center of the ice had moved along 20 feet in thirteen days.

The Geikie glacier, about 4 miles long and 1,000 yards wide, is a much more interesting ice stream. Sheltered from the sun's rays by high cliffs, it flows along a level valley so that one can walk across its lower portion in various directions without trouble. As it descends from the firn it is much broken; then its surface becomes level, but with numerous crevasses. Flowing round a bend longitudinal fissures are set up, crossing the others and forming such a multitude of *séracs* that the surface presents an appearance more like some basaltic formation with the columns pulled asunder than anything else I can think of. This beautiful structure gives place to the frozen waves of a *mer de glace*, and the glacier terminates in longitudinal and slightly radiating depressions and crevasses. The lateral moraines are quite discernible down the sides of the valley for a considerable distance below the termination of the glacier. There is no medial moraine, and the Dawson glacier with medial moraines just stops short of being a tributary. The other great snow field to which I have alluded above, the Van Horne glacier, forms the source of the southeastern fork of the main river of this valley.

Comparing the scenery of the Selkirks with well-known views in Europe, Mr. Green says:

The peaks do not rise so high above the general level of the glacier as to be comparable with the higher ranges of the Swiss Alps. They resemble more some of the ranges of the Tyrol. The great forest-clad valleys of the Selkirks can, however, scarcely be surpassed for beauty. The St. Gothard valley and the ranges between it and the Bernese Oberland, including the Rhône glacier, will afford the best comparison I can think of; but the views obtained from the railway are grander than anything visible from the St. Gothard. . . . When in the high alps of New Zealand I had to acknowledge that the alpine flora was far inferior, in color at least, to that of Switzerland. Not so in the Selkirks. Were it not that the blue star of the gentian is missing, I would say that we had more color in America. The most conspicuous of these alpine plants is *Castilleja miniata*, its scarlet blossoms giving a marvelous brightness to the mountain slopes and to the older portions of the glacier moraines, which were perfect gardens of flowers. . . . The highest point at which we met with alpine plants was on the southern slopes of Ross Pass, 8,500 feet above the sea.

Among the animals of the regions, which include black, cinnamon, and silver-tip bears, mountain goats, caribou, marmots, mountain rats, and creatures of the squirrel and rabbit kind, is described one, the sewellel, which has a strange fancy for collecting flowers. It lives be-

neath the boulder heaps, and about its burrows are found little bouquets of blossoms with their stems neatly placed together as if some child had laid them down. So much like the work of human hands do these look that the explorers on first seeing them supposed themselves to be on the track of other travelers. Copper and iron ores in abundance and galena, often rich in silver, appearing in several places, give rise to hopes of abounding mineral wealth. It is greatly to be regretted that the splendid evergreen forests of the territory are fast undergoing destruction from fires occasioned by sparks from passing engines and neglected camp-fires.

Europe.—In France an underground river is reported to have been discovered in the Miers district of the department of Lot, and explored to a distance of seven miles by three men in an open boat. It was first seen at the bottom of an abyss known as the Pit of Paderoe, and was found to wind through a succession of grottoes and to abound in rapids; at the end of the seven miles it seemed to take a sudden plunge that made further examination dangerous.

Greenland.—Dr. Fridtjof Nansen, who made the first journey ever made across the inland ice of Greenland from east to west, in 1888, returned to Europe in the spring of 1889, having arrived on the western coast too late to find passage in the preceding autumn. Previous attempts to penetrate the interior of Greenland have been made from the west. Dr. Nansen's idea was that starting from the east his party, having nothing behind them but the desolate coast, and before them the comforts of civilization on the west, would have no temptation to turn back and every inducement to go forward; the only alternatives would be to cross the country on the one hand, to die in the solitudes on the other. They sailed, therefore, for the eastern coast, but so thick was the ice floe that six weeks were spent in wandering about in the ice between Iceland and Greenland before the coast could be approached near enough for a landing to be made. On July 17, however, the party, consisting of six men, left the ship in the ice near Cape Dan, outside the Sermilik fjord. This is in about 65° 30' north latitude. They were in two boats, and expected to make their way in one or two days through the ice pack of ten miles that still separated them from the land.

But we met quite unexpectedly with a strong and dangerous current which pressed the ice floes against each other, and we had to take great care that our boats were not crushed; to make it more difficult, we got for some time fog and heavy rain. In spite of all this we advanced for about twenty hours rather rapidly toward land. I could see the stones on the shore, and was already quite sure of reaching it within a short time, when we had the misfortune of getting one of our boats crushed during an ice pressure; it could not float, and we were obliged to take it up on a floe and get it mended. This required several hours, and in the mean time we were swept southward by the rapid current; the distance from the land grew rapidly, and the speed with which we were swept along was so great that it was in vain to try to struggle against it. We had nothing left but to take leave of the beautiful mountains and the glaciers round the Sermilik fjord, and to look out for another landing place, or perhaps meet destruction in the floe ice with its capricious currents, which soon carried us toward land, but soon again toward the open sea. To make

the position still more awkward, we got heavy rain which wet us through to the skin. We could do nothing better than pitch our tent on the ice floe and creep into our sleeping-bags to take a sleep which, after twenty hours' constant hard work in the ice, was rather welcome.

I shall not tire you with a description of our drift along the east coast of Greenland, how we dragged our boats over the ice floes; how we worked hard and tried to force our way toward land; how, in the nights—with those charming Arctic sunsets, which call forth in your mind all your most tender feelings and dreams of your childhood—how we could then be seen casting longing looks toward that wild and beautiful coast from which we were parted only by some few miles of vexing ice. I will not tire you with a description of how often we hoped to land, how often we were disappointed, and how often we were nearly wrecked in the ice; the worst of it was that the precious summer time was passing away and we were not able to use it; the difficulty of carrying out our plans grew greater every day.

That you may get an idea of what risks one runs in such ice currents, I will tell you our experiences of one day and night only. One morning we observed that we were being rapidly carried by a strong current toward the open ocean, where a heavy sea was coming from the east down upon us; it was in vain to try to drag our boats over the floe ice against this current; it was inevitable that we must come into the dangerous breakers at the margin of the ice, where it was impossible to stick to the ice. The ice floes were smashed to pieces all around us; our own floe was broken into several pieces; we had nothing to do but select the strongest ice floe we could find in the neighborhood and to prepare with our utmost determination for a hard struggle for life. We got a strong floe, brought all our things and provisions into our two boats, which were standing on the ice floe; only our tent and two sleeping-bags were still left for use on the ice. Toward night all was ready; we were then some thousand yards from the open sea—we could only too distinctly see how the ice floes were washed over by the heavy breakers so that everything was swept away, how they were broken to pieces and then almost crushed into dust; within a few hours we should be at the outside margin; there would be nothing left but to try to get our boats through the breakers and enter the open sea; but as it was best to face this struggle with as fresh energies as possible, all the men were ordered to sleep except one, who should keep watch and call us when it would no longer be possible for us to maintain our position. While Captain Sverdrup took the first turn, we crept into our sleeping-bags, and as we were tired, all of us, we fell fast asleep within a few minutes. Even the Lapps slept well though they had been dreadfully anxious all the day, and were quite sure they had seen the sun setting for the last time; one of them, who did not find the tent safe enough, slept in one of our boats, and did not even awake when the breakers very nearly had swept the boat away, so that Sverdrup was obliged to hold it.

After some time I was awakened by hearing the breakers roar just outside the tent; I expected to hear Sverdrup call, or to see the tent swept away, but Sverdrup did not call and the tent stood; I heard the thunder of the breakers for some time, but then I do not remember anything more. I fell asleep again and did not awake until next morning, when I was most astonished to discover that we had again approached land and were far distant from the open sea. Sverdrup told me now that our position had been rather awkward for some hours in the night; we had had a large mass of ice on our side which threatened to crush our floe every moment, and the breakers swept over our floe on all sides, only the spot where the tent was standing was spared. Once he came to the tent-door to call us; he unfastened one hook, but then thought he would still look at the next breaker coming; this was worse than the former one; he re-

turned to the tent, unfastened one hook more, but thought it best to wait and watch what the next breaker would be like. He did not unfasten any more hooks. Just at the decisive moment the current turned and we were again carried toward land, away from the dangerous breakers.

On July 29 they landed at Anoritok, in latitude $61\frac{1}{2}^{\circ}$, not very far from the southern point of Greenland, and about 250 miles south of the place where they had intended to begin their westward journey. They could easily have reached the Danish settlements on the west coast, but Dr. Nansen chose to take the risk of carrying out the original plan as far as possible, and the boats were therefore steered northward. Several encampments of heathen Eskimos were passed on the coast, but no help could be got from them, as they could not advance through the ice as well with their skin boats as the travelers could with their wooden ones. On Aug. 10 they reached Umivik, a little above latitude 64° , which seemed a convenient place to begin the overland journey. Their destination was Christianshaab, at Disco Bay; but after a few days' experience of the difficulties of pulling their sledges over the snow, standing on *skis*, or Norwegian snow-shoes, which, though hard and good at first, soon became soft and difficult for the sledges, they saw that they could not reach that point before the last ship would start for Europe. On Aug. 27, therefore, they changed the direction of their route toward Godthaab, situated farther to the south. By the change of direction the wind became so favorable that sails could be used on the sledges for the next three days. Dangerous crevasses were frequent on the way, and occasionally some one fell up to the arms through the snow bridges by which they had to be crossed; and on one occasion the first three men with their two sledges were nearly engulfed in a broad crevasse which showed in the twilight only as a dark spot on the snow.

In the beginning of September they reached a large and quite flat plateau, resembling a frozen ocean, and between 8,000 and 9,000 feet in height. Their thermometers did not go low enough to register the temperature, but they believed that it fell on some nights to between 80° and 90° Fahr. below the freezing-point:

We saw only three things—that was snow, sun, and ourselves. One day was quite like another. But still even this part of the earth has its beauties, and I shall never forget the glorious sunsets and the nights on the snow and ice fields of Greenland, when the ever-changing northern lights were scintillating perhaps brighter than anywhere else. I shall never forget the strange impressions, as from another world, we got in this solemn, silent nature, as we saw the lights spreading like a terrible fire over the whole sky, then gathering again in the zenith, as if swept together by a storm, always flitting, burning, and scintillating, and then at once disappearing, leaving the monotonous snow fields in darkness as they were before. . . . The landscape was not always, however, so peaceful as here described; sometimes we met snowstorms, and we often saw nothing but drifting snow. One day, the 8th of September, we were even obliged to remain in our tent, while it was nearly torn to pieces by the storm; the next day, when we wanted to continue our journey, we found that the tent was almost quite buried in the snow. We had to dig ourselves out and hunt for our sledges which had quite disappeared; this, however, was very often the case in the mornings.

On Sept. 24 they reached land at a small lake to the south of Kangersunek, a fjord where a large glacier issues; and, on the 26th, they reached the sea at the inner end of the Aimeralik fjord in $64^{\circ} 12'$ north latitude, having passed over the inland ice about 260 miles. They were still 50 miles from the nearest inhabited place, Godthaab, and were obliged to build a boat of parts of their tent and sledges to reach it.

Dr. Nansen believes that, so far at least as the southern part of Greenland is concerned, his expedition has disproved the theory of Dr. Nordenfjöld, who held that "it is in most cases a physical impossibility that the interior of a large continent should be completely covered with ice under the climatic circumstances that occur on our planet south of 80° latitude"; and that, as to the interior of Greenland, it is even easy to prove that the conditions for the forming of glaciers can not occur there if the surface of the land does not gradually and regularly rise from the east coast as well as the west coast toward the center. But such a shape, he says, has no continent, orographically known, on our earth. Greenland, he thinks, like Scandinavia in its orographical construction, consisting of mountain ranges and peaks separated by deep valleys and plains; and in such a country most of the rain and snow must fall in the neighborhood of the coasts, while only dry and warm winds reach the interior, so that there can not be moisture enough to form a glacier there.

On the contrary, Dr. Nansen holds that his observations prove that this part of the interior is not only ice and snow clad, but has a mighty shield-shaped covering of snow and ice, under which mountains as well as valleys have quite disappeared, so that their configuration can not even be traced. It rises regularly, though rapidly, from the east coast, reaching a height of 9,000 or 10,000 feet, is rather flat and even in the center, and then falls regularly toward the west coast. He does not believe that this conformation of the ice indicates a similar shape of the land—that is, a high central plateau sloping to the coasts, but that the interior is like that of Norway and of Scotland, the valleys being filled with ice of enormous thickness, and the even surface being due mainly to the action of the wind, filling up the depths with the loose dry snow and leveling and polishing the great field till it looks like the surface of a frozen ocean.

The fact that snow falls nearly every day and that there is very little melting going on, seems to lead to the conclusion that the quantity is constantly increasing. But this does not seem to be the case, since if it were, the quantity of snow and ice on the coasts would be constantly increasing also, whereas the observations and measurements on the west coast for several years indicate that they keep about the same level. This fact Dr. Nansen explains on the theory that the pressure in this mass of ice and snow forces the ice downward along the sloping sides of the mountains and through the valleys toward the sea, where it falls in ice streams or glaciers, and is melted or carried away in icebergs; moreover, much may be carried away in the form of water, since the melting-point of ice is lowered by pressure—a theory confirmed by the fact that even in the middle of the cold Greenland winter, rivers

run out under the glaciers at the margin of the inland ice.

The careful observation of a snow and ice covering like that of Greenland is, in my opinion, of great importance for the theory of the formation of valleys and fjords by the ice. The ability to excavate the ground underneath must be considerable in quantities of ice like those observed there. To me it seems indeed natural that the more we study Greenland, its coasts and its inland ice, the more convinced must we feel of the great ability of the ice to form fjords and valleys to a great extent. Indeed, if we attentively study on one hand the fjords and valleys of Greenland, with their many evidences of glacial influence, and on the other hand the inland ice, we can be in no doubt whatever that these are in a near relation to each other; and if we from Greenland turn our eyes to Norway and Scotland, we must grant that there are here quite similar formations.

In meteorological respects there are some observations of great interest. The very low temperature met with in the interior will be astonishing to most meteorologists; it does not seem to agree with the received meteorological laws, at all events, not at the first glance. The radiation of warmth from this immense snow field in such an altitude, where the air is consequently very thin, must evidently have a great influence in lowering the temperature. The interior of Greenland must indeed be the coldest place on earth hitherto known; it must be a kind of cold pole from which the winds blow toward the coasts and the sea. I think that this low temperature may throw a good deal of light on the much discussed question, the cause of the great cold of the glacial period in Europe and North America, which at that time were covered with an ice sheet similar to that we now see in Greenland. I think that the best way of solving the problems of the great ice age is to go and examine the places where similar conditions are now found; and no better place can be found than Greenland.

From a study of the glacial phenomena of the west coast of Greenland, M. Charles Rabot, the explorer of Lapland, draws the following conclusions: First, from a comparison of the inland ice of Greenland with the glaciers of Lapland, of the type of the Svartis and the Jökulfjeld, it appears certain that the latter glaciers are inland ice in miniature; and that the Svartis and the Jökulfjeld are vestiges of the glacial period in Scandinavia, which have remained to the present day in consequence of particular circumstances. Second, that the great glacier of Jakobshavn has advanced in recent years; it is about $1\frac{1}{2}$ mile beyond where it was observed by Lieut. Hammer in 1878. Third, that the drift ice of the ice field, which lies along the southwest coast, only transports a very small quantity of materials. In crossing the ice field, sixty miles wide, only one out of the fifty or sixty pieces of ice observed was covered with *débris* of detritic origin.

Guiana.—M. Georges Brousseau, in a letter to the Geographical Society of Paris, says that he finds the river Inini, in French Guiana, represented on existing maps as a small creek, to be in reality an important river, with an average breadth of from thirty-five to fifty yards, flowing through a deep channel. It could be ascended for more than twenty days by canoe in one or other of its chief branches.

Mexico.—A gold district has recently been discovered in the northeast part of Lower California, 60 miles east of Ensenada. Beginning at the foot of the mountains, it extends for 50 miles or more to the northeast, about 4,500 feet above the sea. Placers are found in the lower

levels of the many cañons or gulches, and quartz lodges of a mineral character intersect the hills in every direction. Whether it can be profitably worked is still a question. Other minerals—silver, copper, iron, lead, saltpetre, sulphur, etc.—are found there also, according to report.

Paraguay.—The return of an expedition to explore the Jejui River in Paraguay was reported in 1888. Capt. Sandalio Sosa, of the Argentine army, and Dr. de Bourgade, secretary of the Hydrologie Society of France, explored that river, the banks of the Igatimi, and the upper Paraná. They discovered two important tributaries of the Igatimi, called the Ipytá and the Ihoby, which they explored. They visited the Guaira Fall, the height and volume of which they found to have been greatly exaggerated. Capt. Sosa says: "The Guaira Fall is not a single perpendicular plunge of water; it is a tumultuous collection of rapids and great and little falls all plunging together into a single channel, through which are forced 15,000 to 20,000 cubic metres of water. The height of the precipice is 100 metres. This vast quantity so violently precipitated sends up a mass of vapor visible at a farther height of more than 100 metres."

They found the natives well disposed. Somewhat farther down the stream than the Cainguás and the Guaranís they found a tribe heretofore unknown, the Apyteré, or inhabitants of the center. These they regarded as the most advanced of the tribes visited. They play upon simple pipes and understand the potter's art.

United States.—An expedition to determine the exact boundary between Alaska and the British possessions was sent out in June, 1889, by the United States Coast and Geodetic Survey, under the lead of J. E. McGrath. The treaty of 1825 places the line at the summit of the mountains or the watershed where the watershed is within a distance of ten leagues from the coast; where it is not, the line is to run parallel to the coast at a distance from it of ten leagues; and then follows the 141st meridian to the Arctic Ocean.

An attempt to ascend Mount St. Elias was made in July, 1888, by a party under Mr. Harold W. Topham. They reached the upper rim of the so-called crater; the height reached was 11,461 feet, and the summit towered, as they judged, some 8,000 feet above. Mr. Topham saw no evidences of volcanic action, though a cone of rock, shaped like a sugar-loaf, rising from near the upper rim of the crater, resembles the lava cones of Kilauea in Hawaii. It is about 80 feet high and 40 broad at the base, and is composed of numerous stones of irregular shape, having flat, even surfaces and fitting into each other like mosaic work.

The bottom of the crater is full of ice, and upon its precipitous cliffs are a number of overhanging glaciers, splashed, as it were, upon the rocks and detached from the snow fields above. This is characteristic of a number of glaciers in the neighborhood. There they are, right on the rocks, with yawning crevices upon them broken up and ready to topple over upon you. Perhaps in a few years they will have melted entirely away. Everything around St. Elias bears evidence to the conclusion that the long period of ice through which the land has been passing is now coming to an end.

The panorama obtained from the point reached was

very wonderful. The distances were immense. To the northwest we could see many ranges of hills with huge glaciers between them. Most of these mountains appeared less than 7,000 feet high, but there were several very much higher, and I believe that we saw Mount Wrangel, which Lieut. Allen states to be about 17,500 feet high, the second highest mountain in North America.

The Malaspina glacier appeared with its moraines like a huge race-course, and the streaks of *débris* at the west end of the course had fashioned themselves into the semblance of Saturn's rings. This glacier filled up the whole space to the east as far as the horizon. Mount Fairweather, distant 150 miles, stood up beyond. To the south we could distinguish the sea and the mouth of the river. The greater part of the Malaspina glacier and certainly nine tenths of the white ice comes from between Mount St. Elias and Mount Cook. The ice coming from the south of Elias is covered with *débris*, shale, and slate, for the most part such as we had been climbing up. This formation renders climbing very tiring work. No step is quite safe. Whole masses of rocks become dislodged and fall thundering down the mountain-side, and so thick was the cloud of dust which enveloped us on our descent that the last man had great difficulty to see where to walk. There is a *couloir* about 3,000 feet in height, down which stones are continually falling, owing to the rapid disintegration of the mountain. They never cease falling, and a pillar of dust ascends high into the air, giving the appearance, when seen from a distance, of steam or smoke, and the wind plays upon the dust just as it plays upon the Staubbach and other high waterfalls, wafting it to and fro, and sporting with it as it likes. As we approached the mountain from the Tyndall glacier we had been under the impression that the pillar of dust was smoke or steam due to volcanic agency, and, although we had examined the phenomenon through a powerful telescope, we continued of the same opinion until we arrived close to it and discovered its true nature. The Tyndall glacier forms a very small part of the Guyot, but most of the moraine upon the latter descends from the southern slopes of Elias. The Guyot glacier stretches away out of sight to the south. The Chaix hills are in the shape of a great V. At the angle of the V are snow fields, connected with a short range of hills of a reddish sandstone. These run north and connect with St. Elias. On the west side of the Tyndall glacier are several smaller glaciers descending from the range of hills which flank the Tyndall on that side. The hills are of gray sandstone, shale, and slate. Upon these hills we found many seams of coal and some fossils of the Miocene, or perhaps Eocene, period on their glaciers. Upon the east lateral moraine we found hornblende, shale, amygdaloid, and some granite. From where we were upon St. Elias we could see that a branch of the Guyot glacier descends from the northward of the peak and passes behind these hills. This fact, coupled with that mentioned above, that the greater part of the Malaspina glacier appears to come from northeast of Mount St. Elias, makes me think that the mountain itself is not at the summit of the watershed. This is interesting only to those who are anxious to place Mount St. Elias in Canadian territory, because the boundary, according to treaty, was to run parallel to the coast, at a distance of ten leagues, except where the summit of the watershed came within that zone, in which case the watershed was to be the frontier.

The influence of forests on rainfall has been the subject of a careful study by Prof. Henry Gannett, of the Geological Survey. His investigations have convinced him that the existence of woodland has no connection as a cause with the quantity of rainfall. The fact that forests are generally found in places subject to heavy rainfall has led to the belief that, while the rain-

fall, of course, promotes the growth of forest, the forest has a reciprocal influence on the fall of rain. Maj. Powell says that if there is any influence on rainfall from the presence of woodland it is so very slight as to be scarcely worth considering as a climatic factor. He advocates a system of irrigation on the arid lands of the West, estimating that at least 150,000 square miles of the 1,300,000 of arid land in the United States might be reclaimed. (See IRRIGATION, in this volume.)

The question of the influence of forests on rainfall has also been studied by Dr. R. von Lendenfeld, in connection with the climatic conditions of Australia. His conclusion is that in warm and dry countries, like the interior of Australia, the removal of trees tends to increase the rainfall and the humidity of the climate. The soil is so hard and dry that the greater part of the fallen rain passes swiftly over it and falls into the lakes, many of which are connected with the ocean by subterranean streams, so that there are no large lakes and rivers. When, however, the trees are taken away, according to Dr. Lendenfeld, their deep-reaching roots no longer absorb the rising moisture, so that it reaches the roots of the grasses and herbs. The dead stems of the grasses decay and leave little vertical channels in the ground, passing below into larger channels formerly taken up by the tree roots. This renders the soil porous.

One effect of the westward movement of emigration is seen in the recent purchases of Indian lands to be thrown open to settlers. Oklahoma, an area of 3,120 square miles, situated in the heart of the Indian Territory, was opened to settlers in the spring of 1889. This region, which is not laid down on many of the maps, is bounded on the north by the "Cherokee strip," on the east by the Pawnees, Iowas, Kickapoos, and Pottawatomies, south by the Chickasaw land, and west by the Cheyennes and Arapahoes. The Cimarron river forms part of its western boundary and passes through its northern part: the Canadian river bounds it on the south, the "Indian meridian" forms the greater part of its eastern boundary, and the 98th meridian of longitude more than three fourths of its western. By various acts extending back to the time of the civil war, it has been withdrawn from Indian occupation and made public land; but heretofore the attempts of settlers to occupy have resulted in failure. The bill allowing the settlement of whites in Oklahoma passed Congress Feb. 1, 1889, and was signed by the President March 27, the opening being fixed for April 22, at noon. The scenes of that day are unparalleled in the annals of emigration. Encamped on the borders of the country, awaiting the stroke of noon on the appointed day, were crowds of speculators, adventurers, and genuine settlers, prepared to spring upon the most desirable sites and hold them against all later comers. The consequent confusion was, however, well over in a week's time; officers chosen by the settlers quickly inaugurated a reign of law. Guthrie, chosen as the capital, reports 15,000 inhabitants.

Interest now centers in the efforts of the Government to acquire what is known as the Cherokee Strip in the Indian Territory. It is through this land only that the recently opened territory

of Oklahoma can be approached from the north, and for this reason it seems almost impossible to prevent unlawful incursions. Altogether there are 6,022,000 acres, for which the Government offers \$1.25 an acre. If the Cherokees sell on these terms they will receive \$7,527,700 which, at even a low rate of interest, would yield them a larger revenue than they have received by leasing the land to the live-stock company that has controlled it for several years. It has been supposed that the Indians were strongly averse to the sale of their lands, but the results of the recent elections show that there is a very strong sentiment in favor of accepting the offer made by the Government.

In an enthusiastic description of Mount Rainier, or Mount Tacoma, in "Petermann's Mittheilungen," under the title "The Rigi in the Cascades of North America," Dr. Julius Röll says:

A few days later, on June 22, we ascended for the second time, in fair, clear, weather, and from the first peak could admire Mount Tacoma in all its grandeur and beauty. I had often seen this noble mountain—its northern profile from Eagle Gorge, its northwestern slope from Enumclaw and Tacoma, and its southwestern side from the Park to Portland; now it presented to our eyes its northern view. Its summit is divided, the left and higher peak from the right by a level cut having in the midst a small wavelike elevation. It might be a question whether the view from the northwest, from Mount Boldy near Enumclaw and from Tacoma, showing but a single great peak, is not the more beautiful. But this view from the north is grander and more sublime, where the giant rises from the billowy, snowy peaks of the Cascade range as from the waves of the sea. From their summits to the peak rising about 4,400 metres on high, he is wrapped in snow and ice; only a little peak standing forward on the left or eastern slope half-way up the mountain shows dark with its rocky surface. Mount Cevedale in the Ortler group, the Silberhorn in the Bernese Oberland, the Johannisberg on the Grossglockner, and other Alpine snow-clad summits are not to be compared with this. I have never seen a mountain to equal it, either in Switzerland or the Tyrol, in the Rockies or the Cascades, Mount Blanc and Monte Rosa not excepted.

To the mountain from which this view was obtained Dr. Röll gave the name Mount Rigi. It lies in 121° 15' west longitude and 47° 22' north latitude, is about 7,500 feet in height, and has three peaks rising one above another. He believes that the magnificent view from this New World Mount Rigi will some time lead to the building of a mountain railway to its summit.

An expedition sent out by the Minnesota Historical Society to settle the disputed question as to the real source of the Mississippi made a four months' tour in the regions lying about its headwaters, and returned with the report that neither Itasca, Elk, nor Whipple lake is entitled to the honor, but that the true source must be regarded as two lakes, lying about a hundred feet higher than Itasca and west from it. Meantime the State Legislature had made a law that Elk lake should be the name of the water sometimes known as Lake Glacier, and that after Jan. 1, 1890, the use of all books and maps giving any other name to that lake should be forbidden.

Venezuela.—Lake Valencia in Venezuela is remarkable for the rapid rate at which its waters are receding. A recent examination by Herr E. von Hesse-Wartegg brings out some facts con-

cerning it. In Humboldt's time it was thirty-five miles long; it is now but thirty miles and a half. The town of Valencia was built in the year 1555 at a distance of a half-mile from the lake shore; in Humboldt's time it was three miles and a half distant, and now it is nearly five miles away. Herr von Hesse-Wartegg noticed on the islands he visited in the lake a well-defined old shore line, about ten feet above the present level of the lake; and his observations led him to conclude that the lake may have been at that level as lately as during the last century. There are twenty-two islands, of which only three are peopled. The inhabitants believe that the water of the lake, which is turbid and contains a quantity of organic matter, tends to induce disease, and they do not drink it. A part of the diminution in the quantity of water in the lake is attributed to the gradual destruction by the cattle breeders of the forests that formerly covered all the valleys around the lake, thus reducing the supply from the tributary streams, of which there are fourteen—not twenty-two, as by former reports.

GEORGIA, a Southern State, one of the original thirteen, ratified the Constitution Jan. 2, 1788; area, 59,475 square miles; population, according to the last decennial census (1880), 1,542,180; capital, Atlanta.

Government.—The following were the State officers during the year: Governor, John B. Gordon, Democrat; Secretary of State, Nathan C. Barnett; Treasurer, R. U. Hardeman; Comptroller-General, William A. Wright; Attorney-General, Clifford Anderson; Commissioner of Agriculture, J. T. Henderson; State School Commissioner, James S. Hook; Railroad Commissioners, Alexander S. Irwin, Campbell Wallace, L. N. Trammell; Chief Justice of the Supreme Court, L. E. Bleekley; Associate Justices, M. H. Blanford and T. J. Simmons.

Finances.—On Jan. 1 the 6-per-cent. State bonds of 1877, amounting to \$2,141,000, became due and were paid by issuing 4½-per-cent. bonds to the value of \$1,900,000, the balance of \$241,000 being paid in cash. This transaction reduced the total State debt from \$8,752,305 to \$8,511,305. The balance at the beginning of the fiscal year 1888-'89 was \$231,351.52.

The tax levy for 1889 was fixed at 4 mills, of which 2·7 mills are levied for State expenses, ½ mill for schools, and the remainder for the State Capitol, the sinking fund, and other purposes. The total tax for 1888 was 3·5 mills. The assessed valuation of the State for 1889 is about \$380,000,000, of which \$34,219,457 is the valuation of railroad property. The total valuation for 1888 was \$357,167,458.

Legislative Session.—The adjourned session of the Legislature began on July 3, and continued through Nov. 9. It was one of the longest sessions in the history of the State. The legislation accomplished was largely local and special, including 64 bank and 66 railroad charters. Much time was consumed in determining whether the lessees of the State road, otherwise known as the Western and Atlantic Railroad, should receive credit for betterments made thereon by them, and in deciding upon what terms a new lease of the road should be made. There was a prolonged disagreement between the two Houses upon the latter subject. The existing lease, which

will expire on Dec. 1, 1890, has brought an annual rental of \$300,000 to the State. A committee appointed by the Legislature of 1887 reported at the November session that the value of betterments made by the lessees was \$750,889.74, while the claim made by the lessees themselves at this session amounted to more than \$887,000. The Legislature finally refused to allow any claim for improvements permanently attached to the property, giving the lessees only the rolling stock held by them above the amount received at the beginning of the lease, to which no claim could well be made by the State. The terms of the new lease were fixed, and July 1, 1890, was appointed as the time for opening bids, the terms of the rental to be advertised for four weeks preceeding. The Governor was instructed not to accept any bid that offered the State less than \$35,000 a month for a lease of twenty years, or less than \$40,000 a month for a lease of thirty years, or less than \$45,000 a month for a lease of fifty years. The annual appropriation heretofore made to Atlanta University, which had not been paid for two years in consequence of the act of 1887 forbidding its payment so long as the university should adhere to co-education of the races, was made payable hereafter to Morris Brown College, a colored institution of Fulton County. The college will receive this year the undrawn appropriation of \$16,000, and \$8,000 annually hereafter. An amendment to the State Constitution was proposed, authorizing the Legislature to aid, by pensions or otherwise, the widows of Confederate soldiers who died in the service or have since died from wounds received in the service. The amendment is framed to apply only to such persons as were married at the time of such service and have remained unmarried since the death of their husbands. Another important act established a college for the instruction of white girls, to be called the Georgia Industrial College, and to be governed in connection with the State University, forming one of the departments thereof. The institution was located at Milledgeville, and \$35,000 were appropriated for buildings. The office of State Geologist was revived, and provision was made for a geological, mineralogical, and physical survey of the State. The hours of labor in cotton and woolen mills and in other manufacturing establishments were limited to eleven hours in each day. This is one of the first attempts made by the State to regulate the employment of labor. The Railroad Commissioners were empowered to fix joint through rates for railroads in the State. Another act provides for the taxation of railroads by counties, the proceeds to be used for county expenses. Several important changes were made in the revenue law. The act taxing sleeping-cars was amended so as to apply to all companies that transport sleeping-cars in the State. The amount was graduated according to the number of miles of railroad. The tax of \$25 on sewing-machine agents was repealed, and a tax of \$200 annually, and \$5 for each agent in the State, was imposed on all sewing-machine companies, to be paid before they can do business in the State. The measure known as the fertilizer-inspection bill reduces the fee for inspecting from fifty cents to ten cents a ton. As the proceeds of this tax, after paying the expenses of in-

spection, were devoted to the support of public schools, this reduction will deprive the school fund of about \$80,000 annually. Other acts of the session were as follow :

Appropriating \$1,000 to complete the roster of Georgia troops in the Confederate service.

To facilitate legal process on lessee railroad companies.

To create a commission to survey Savannah river in the counties of Richmond, Columbia, Elbert, and Fannin, to ascertain if the passage of fish is obstructed, and if so at Augusta, to require the city to provide proper fishways, especially for shad.

To provide for the probate of Georgia wills.

To require the assignees of insolvent debtors to give bonds.

Providing for a commission of three, to be appointed by the Governor, to examine the oyster industry.

A resolution asking the Federal Government to

per to sell or dispose of crops in certain cases, and to make certain acts of the landlord indictable.

To organize the board of trustees of the State University. The bill provides that the old board be abolished and a new one created, composed of one member from each congressional district, two from the city of Athens, and four from the State at large, all to be appointed by the Governor, who is himself to be *ex-officio* a member.

Prohibiting the furnishing of minors with cigarettes.

Providing for a new board of trustees for the lunatic asylum at Milledgeville. The salary is reduced from \$300 to \$150 per annum.

To admit white female students into all the branch colleges of the State University.

To authorize and encourage the construction of telegraph lines in the State.

To require railroads and other common carriers promptly to settle claims for overcharges of freight.

To prevent the exemption from taxation by any



THE NEW STATE HOUSE, ATLANTA, GA.

make a coast survey and physical examination of the waters of Georgia, and prepare charts showing the natural oyster-beds, and productive and unproductive areas.

To require persons or corporations employing females in manufacturing, mechanical, or mercantile establishments to provide suitable seats for them and permit their use.

To organize and incorporate the First Regiment of Georgia cavalry.

To authorize the Governor to lease the Indian Spring reserve.

To prohibit cock-fighting or betting thereon.

To create the office of State Bank Examiner.

To make it a misdemeanor to publish any advertisement of a lottery, gift enterprise, or other scheme forbidden by law, or the result of the drawing or distribution of gifts or prizes, either by newspaper, written or printed posters, dodgers, or circulars.

To authorize the Governor to sell the city lot and old Capitol building in the city of Atlanta, and all of its appurtenances in Marietta Street, at public sale.

To define the rights of landlords to declare the effects of certain contracts, to make it penal for any crop-

county of any manufacturing industry or enterprise, or any property of any kind not now exempt by law.

Providing for the sale of the Okefenokee Swamp.

Providing that liens or mortgages, judgments, etc., shall take effect from the time they are entered on record, and not from the date of execution.

Education.—The following statistics show the condition of the public schools for the school year ending in November, 1888, as compared with that of the year preceding :

ITEMS.	1887.	1888.
White schools	5,088	4,375
Colored schools	2,512	1,987
White children in State		292,624
Colored children in State		267,657
White pupils enrolled	208,865	200,786
Colored pupils enrolled	133,429	120,890
Total pupils enrolled	342,294	321,176
Average attendance	226,290	217,896
Amount paid to teachers	\$644,199 23	\$662,817 40
Total expenditures for schools	\$751,662 48	\$869,005 21

The total amount raised by the State for schools for 1887, and known as the State school fund, was \$493,509.52, and for 1888 about \$520,000. The remainder of the total expenditures for each year was paid from funds raised by local taxation. The State school fund is derived from the half rental of the Westward Atlantic Railroad, amounting to \$150,000 annually; from poll taxes, amounting to about \$190,000 annually; from the liquor tax, yielding \$60,060.27 in 1887, and \$65,392.20 in 1888; from fees for inspecting fertilizers, yielding \$75,284 in 1887 and \$94,115.18 in 1888; from hire of convicts, yielding \$17,184.37 in 1887 and \$18,867.77 in 1888; and from tax on shows and other sources.

The act of the Legislature this year in reducing the fertilizer fees will deprive the fund of about \$80,000 annually; but the act of 1888 making a special appropriation of \$165,000 for schools in 1889, and of \$330,000 in 1890, and granting them also the revenue derived from the State tax on all property above the valuation of \$360,000,000, will more than compensate for the loss.

The State University, at Athens, enrolled during the school year 1888 214 students. The institution is well supported, but needs to establish a higher standard of admission in order to perform the work that naturally belongs to it. There is a permanent fund amounting to \$465,202.17, the income of which is available for the support of the institution. The annual expense of maintenance is about \$31,000.

The Insane.—At the State Lunatic Asylum there were under treatment, in October, 496 white men, 584 white women, 202 colored men, and 225 colored women; a total of 1,507. During the year preceding 515 new patients were received. The whole number treated during the year was 1,901, and the average number of patients was 1,448, or 108 more than for the year 1888. The whole number treated, 1,901, was 155 more than in any previous year. About 75 per cent. of the patients are employed at light labor about the asylum. A remarkable fact is the increase of insanity among negroes. In 1860 there were only 44 insane negroes in Georgia. It is also a curious fact that the increase of consumption among them has been in direct proportion with the increase of insanity.

Militia.—The State militia numbers 4,566 officers and men. An act passed by the Legislature this year provides that there shall be annual encampments of one week of all the military forces of the State, the time to be designated by the Governor, the camp to be chosen by an advisory board, and the expenses to be paid by the Commonwealth. A sum is set apart to be applied to target practice, and the bill is so framed that bids may be received by the advisory board from places that may wish the encampment. There was appropriated the sum of \$7,200 to carry out the provisions of the act. Heretofore no pecuniary aid has been granted by the State to the militia since the civil war.

State Capitol.—It was found late in 1888 that the State Capitol could not be completed at the end of the year, as contemplated by the act providing for its construction, and in December the Legislature extended the time to April 1, 1890. Some contracts were made by the commissioners for extras, which brought

their total expenditures for the building up to \$999,881.57. The total original appropriation for the building was \$1,000,000, all of which was raised by taxation. Much praise was accorded the commissioners for completing the work within the terms of the original appropriation. The building, which covers 63,425 square feet, or about one and a half acre, was accepted and delivered to the State on March 20.

Railroads.—The number of miles of railroad in the State on June 30 is 4,420, of which 71 miles have been constructed since September, 1888. In June 122 miles were in course of construction. The following statistics cover the year ending June 30:

Private railroads in operation in Georgia—miles.	550
Assessed value of all roads	\$34,219,457
Taxes paid annually	\$136,877
Value not taxable	\$40,000,000
Persons employed in the State	13,000
Salaries paid annually	\$10,000,000
Paid for all purposes in the State	\$14,000,000
Total value of stocks, bonds, and other railroad property	\$210,000,000

GERMAN EVANGELICAL SYNOD OF NORTH AMERICA. This body, which was established in 1840, is derived from the Evangelical Church of Germany. It holds the Scriptures of the Old and New Testaments as the only and infallible rule of faith and life, and accepts the symbolical books of the Lutheran and Reformed Churches, including the Augsburg Confession, Luther's Catechism, and the Heidelberg Catechism, so far as they agree with one another, as a correct interpretation of them. According to its latest numerical returns, it has 643 ministers, serving 842 congregations, connected with which are 50,000 families and about twice as many regular attendants at church; parochial schools maintained by 370 congregations; 629 Sunday-schools, with 6,142 teachers and 60,258 pupils; a college at Elmhurst, near Chicago, Ill., and a theological seminary near St. Louis, Mo.; two orphanages near St. Louis, and at Lincoln, Neb., and a third one to be established in Texas. The voluntary contributions during the last three years amounted to \$177,752. The Synod publishes a weekly general religious newspaper, a monthly theological review, and four special papers (missionary and for Sunday-schools and children). Besides maintaining home missions it supports a mission to the heathen in India. The Triennial General Conference of the Synod was held in Evansville, Ind., Aug. 21 to 29. The Rev. J. Zimmerman, of Burlington, Iowa, presided. The body is distinctively one of German-speaking people, and has encouraged the use of the German language in its official acts and preaching and other religious services; but the increasing use of the English language among its membership having made a change of attitude on this subject expedient, resolutions were adopted declaring that

while the Evangelical Synod of North America is German and intends to remain such as long as God permits, it earnestly asks all its ministers and congregations to establish and maintain good German-English parochial schools wherever it is feasible, in order to stop the anglicizing process going on everywhere.

In those places, however, where the establishment of such parochial schools is impracticable, and English catechetical instruction and English preaching can not be avoided without losing our young people,

our ministers should not delay such instruction and preaching, but should keep our children in our Church, even if this can only be done by giving up the German language.

In order, however, to evade as much as possible the inconvenience necessarily arising from a mixture of languages, the anglicized members shall, as soon as practicable, be gathered in purely English congregations, and as such shall be served apart from the German congregations.

As soon as nine English congregations have sprung up they shall constitute an English evangelical synod, separated from the German, but standing in a filial relation to it.

The resolutions also authorize provision to be made for the training of theological students in English; the appointment in the theological seminary of a fourth professor who is proficient in that language; the publication of an English catechism; and the translation of the constitution of the Synod into the English language. The president of the Synod, in order that he might devote his whole time and energy to the presidential work, was relieved from the duty of serving a congregation; and the districts were invited to consider whether his term of office should not in the future be indefinite. The duties of the president were defined to be: To supervise the Synod with all its institutions; to watch its literary activity and engage in it himself as much as possible; to superintend and guide its home and foreign missions; and to further the welfare of the Synod through preaching and lecturing on special occasions. The erection of a memorial church at Spire, Germany, in commemoration of the Protestation of 1529, was approved and commended to ministers and congregations as a proper object for contributions. Measures were taken for establishing a special institute for training parochial teachers at Hoyleton, Ill. Two new districts were formed by division of the Kansas district, making the number of districts subject to the Synod fifteen.

GERMANY, an empire in central Europe founded on treaties concluded in November, 1870, between the North German Confederation and the Grand Duchies of Baden and Hesse and Kingdoms of Bavaria and Württemberg, ratifications being exchanged on Jan. 29, 1871. By decree of April 16, 1871, the Constitution of the Empire took the place of these treaties, entering into force on May 4, 1871. The confederation of states forming the empire is invested with sovereign imperial authority, which is exercised by the King of Prussia, as hereditary German Emperor, and a Bundesrath or Federal Council, composed of representatives of the federated states, limited in certain functions by the powers delegated to the Reichstag or Parliament, a body elected by universal suffrage. The Emperor has the power to declare war, if defensive, to make peace, and to enter into treaties. A declaration of war, if not defensive, must have the approval of the Bundesrath. The assent of the Reichstag is required for legislative measures framed in the Bundesrath, and taxation and expenditure are submitted to the popular assembly for discussion and approval. The Bundesrath has 58 members, nominated by the governments of the individual states for each session. The Reichstag consists of 397 members. From 1890 the legislative period will be five instead of three years, as here-

tofore. All laws passed by the Bundesrath and Reichstag must be signed by the Emperor and countersigned by the Chancellor of the Empire. The Chancellor presides over the sittings of the Bundesrath, while the Reichstag elects its own president.

The reigning Emperor is Wilhelm II, born Jan. 27, 1859, who succeeded his father, Friedrich III, as King of Prussia and German Emperor on June 15, 1888. The heir apparent is the Emperor's eldest son, Friedrich Wilhelm, born May 26, 1884.

The Chancellor of the Empire is Prince Otto von Bismarck-Schönhausen, born April 1, 1815, who has filled the office since the establishment of the empire. The Imperial Ministers or Secretaries of State act independently of each other under the supervision of the Chancellor. The Secretary of State for Foreign Affairs is Count Herbert von Bismarck-Schönhausen, son of the Chancellor. The Secretary of State for the Interior is Herr von Bötticher, who acts as representative of the Chancellor. The Chief of the Imperial Admiralty was Count von Monts, who died in January, 1889, and was succeeded by Vice-Admiral von der Goltz. When the admiralty was divided into a civil and military department, Baron von der Goltz, with the rank of admiral, became commanding admiral of the navy, and Rear-Admiral Heusner took charge of the Marine Office. The Minister of Justice is Herr von Puttkamer; Secretary of the Treasury, Baron von Maltzahn; President of the Railroad Office, Herr Maybach; President of the Court of Audit, Herr von Stünzner; Chief of the Post-Office, Dr. von Stephan; President of the Administration of the Invalid Funds, Dr. Michaelis; President of the Debt Commission, Herr Meinecke.

Area and Population.—The German Empire has an area of 211,196 square miles. The population on Dec. 1, 1885, when the last census was taken, was 46,855,704, compared with 45,234,061 in 1880 and 42,727,360 in 1875. Prussia, with an area of 137,066 square miles, had 28,318,470 inhabitants. Bavaria, 29,375 square miles in extent, had a population of 5,420,199. Württemberg comes next in size, with an area of 7,530 square miles, but the population was only 1,995,185, and that of Baden, with an area of 5,824 square miles, was 1,601,225, while Saxony, with an area of 5,795 square miles, had 3,182,003 population. The imperial province of Alsace-Lorraine, 5,580 square miles, had a population of 1,564,355. The twenty minor states—grand-duchies, duchies, principalities, and free cities—which with the Kingdoms of Prussia, Bavaria, Saxony, and Württemberg, and the Grand Duchy of Baden, form the German Empire, are Mecklenburg-Schwerin, population 575,152; Hesse, 956,611; Oldenburg, 341,525; Brunswick, 372,452; Saxe-Weimar, 313,946; Mecklenburg-Strelitz, 98,371; Saxe-Meiningen, 214,884; Anhalt, 248,166; Saxe-Coburg-Gotha, 198,829; Saxe-Altenburg, 161,460; Waldeck, 56,575; Lippe, 123,212; Schwarzburg-Rudolstadt, 83,836; Schwarzburg-Sondershausen, 73,606; Reuss-Schleiz, 110,598; Schaumburg-Lippe, 37,204; Reuss-Greiz, 55,904; Hamburg, 518,620; Lübeck, 67,658; Bremen, 165,628.

The number of marriages in Germany was 372,326 in 1886, against 368,619 in 1885; the number

of births, 1,814,499, against 1,798,637; the number of deaths, 1,302,103, against 1,268,452; excess of births over deaths, 512,396, against 530,185. The proportion of illegitimate births was 9.47 per cent.

The population of Germany was divided in 1885 in respect to religious creeds as follows: Protestants, 30,000,000; Catholics, 15,882,000; other Christians, 126,000; Jews, 554,530.

The following cities contained more than 100,000 inhabitants on Dec. 31, 1885: Berlin, 1,315,287; Hamburg, 305,690; Breslau, 299,640; Munich, 261,981; Dresden, 246,086; Leipsic, 170,340; Cologne, 161,401; Magdeburg (with Neustadt and Buckau), 159,520; Frankfort-on-the-Main, 154,513; Königsberg, 151,151; Hanover, 139,731; Stuttgart, 125,901; Bremen, 118,395; Düsseldorf, 115,190; Nuremberg, 114,891; Dantzig, 114,805; Strasburg, 111,987; Chemnitz, 110,817; Elberfeld, 106,499; Altona, 104,717; Bremen, 103,068.

Emigration.—The emigration question has for many years past seriously engaged the attention of German statesmen and economists. In the acquisition of colonies the Government, in extending its protection, and private individuals, in embarking their capital in such enterprises, have been guided by the supposed adaptability of the territories for European colonization, hoping to turn the stream of emigration away from the United States, which have always been the goal of the best class of German emigrants, who become entirely lost to the fatherland, renouncing their allegiance and forgetting their native language and customs. The highlands of New Guinea and of east Africa and the interior of southwest Africa were supposed to be adapted for agricultural and pastoral settlements, and still no German emigration has been attracted to those regions. Several years ago southern Brazil was praised as a profitable field for German settlers, where they would retain their national habits and sentiments, although on foreign territory. Uruguay, Paraguay, and the Argentine Republic were recommended also, and even Patagonia. The formation of German settlements in southern Brazil dates from 1824. Some estimate the total number of Germans in Brazil and their descendants at 230,000. They live in communities separate from the rest of the population, and have their own churches, schools, and newspapers. Nearly 9,000 Germans went to Brazil in 1872-'73, but the Brazilians have not received with favor the planting of a foreign colony in their midst. A German exhibition at Porto Alegre was broken up and burned by a mob. The Brazilian Government has endeavored to discourage German immigration, while welcoming the more assimilable Italians, and has done what it could to break down the national character of the German settlements by intermingling with them immigrants of other races. Even the Chinese are held to be preferable to German settlers. For these reasons the Prussian Government has disapproved emigration to southern Brazil, and latterly the tide has run more strongly to other parts of South America. In 1888 the emigration to Brazil was 1,129; to other countries in South America 1,723. But the main current sets toward the United States, where three quarters of the 5,000,000

emigrants that have crossed the sea since 1820 are settled, with their descendants, as American citizens. The recent social legislation, especially the wide-reaching scheme of old-age and infirmity insurance, has for one of its chief objects to deter people from going to America. Every one dependent on wages is compelled to contribute to the accumulation of a capital that will provide an annuity when he is no longer able to work, but the emigrant forfeits all that he puts into the fund, as well as the benefits of the sick and accident insurance. The total emigration from Germany from 1871 to 1888 was 1,769,297 persons, and of these no fewer than 1,618,816 went to the United States. The emigration to Brazil during the eighteen years was 33,443; to other parts of South America, 15,599; to Australia, 16,341; to British North America, 4,780; to Africa, 4,047; to Asia, 1,086. There remain 74,685 emigrants sailing from French ports whose destination was not reported; but nearly all of these also were bound for the United States. The year of highest emigration was 1881, when 220,902 Germans sought new homes across the ocean. In 1887 the number of emigrants was 95,605, exclusive of 4,107 who went by way of Rotterdam and Amsterdam, and of 4,947 sailing from Havre and other ports. The emigrants by way of German ports and Antwerp comprised 52,986 males and 42,619 females. The number whose destination was the United States was 91,869. Brazil was the destination of 1,152, other American countries of 1,555, Australia of 500, and Asia and Africa of 529. The number of emigrants in 1888 was 98,568, not including those who sailed from French ports.

Finances.—The imperial expenditures in excess of the revenues from customs, stamps, certain excise duties, and the profits of the post-office and telegraphs are defrayed from assessments levied on the individual states in proportion to their population. The total ordinary expenditure for 1888-'89 was estimated at 775,594,769 marks; but extraordinary expenditures of 450,331,305 marks, of which 372,473,616 marks were for military purposes, swelled the budget to 1,225,926,074 marks. To meet the extraordinary requirements 394,695,887 marks were raised by a loan. For the year ending March 31, 1890, the total expenditure is estimated at 949,678,497 marks, of which 142,678,497 marks represent non-recurring or extraordinary expenditures. The ordinary expenditures are apportioned in the following manner:

PURPOSES.	Marks.
Reichstag	383,520
Chancellery	147,960
Foreign Affairs	8,518,854
Interior	8,373,172
Army	366,905,174
Navy	34,512,781
Justice	1,851,596
Treasury	286,709,966
Railroads	298,240
Debt	37,438,500
Bureau of Accounts	555,048
Pension fund	34,510,836
Invalid fund	26,174,848
Total	806,425,490

The receipts from customs and excise duties are set down at 528,086,410 marks; stamps, 27,975,000 marks; post-office and telegraphs, 29,164,417 marks; railways, 19,202,995 marks; interest

of invalid fund, 26,267,332 marks; Imperial Bank, printing office, interest of imperial funds, Government departments, and other sources, 13,144,279 marks; extraordinary receipts, 84,123,882 marks; matricular contributions, 221,140,567 marks. The extraordinary expenditure includes a deficit of 22,696,484 marks in the accounts for 1887-'88 and the expenditure of 70,284,394 marks for military and 16,533,770 for naval purposes.

The budget presented to the Reichstag at the opening of the session of 1889-'90 on Oct. 22, makes the revenue and expenditure balance at 1,208,664,739 marks. Of the expenditure 849,614,835 marks are set down as being permanent and 81,349,597 marks as non-recurring in the ordinary estimates, and 277,700,307 marks as being non-recurring expenditure in the extraordinary budget.

The budgets of revenue and expenditure for each of the states composing the German Empire are given in the following table, in German marks, together with the amount of their public debts:

STATES.	Revenue.	Expenditure.	Debt.
Prussia	1,410,728,921	1,410,728,921	4,425,104,507
Bavaria	260,037,121	260,037,121	1,350,636,808
Württemberg ..	56,321,297	56,305,482	421,339,066
Saxony	112,102,814	112,102,814	650,205,550
Baden	47,111,647	45,895,797	343,297,085
Mecklenburg-Schwerin	20,650,868	20,650,868	42,438,800
Hesse	25,804,411	22,011,205	35,707,064
Oldenburg	7,666,960	8,214,770	37,431,432
Brunswick	14,745,000	14,745,000	28,971,000
Saxe-Weimar	6,746,544	6,746,544	5,856,775
Saxe-Meiningen	5,248,630	4,946,340	12,338,517
Anhalt	9,939,000	9,939,000	2,868,462
Saxe-Coburg-Gotha	6,588,331	6,048,823	7,630,367
Saxe-Altenburg	2,735,974	2,725,078	1,004,503
Waldeck	1,081,965	1,047,876	2,299,500
Lippe	1,017,449	1,012,750	942,907
Schwarzburg-Rudolstadt	2,203,200	2,203,200	4,246,000
Schwarzburg-Sondershausen	2,432,049	2,426,635	3,686,382
Reuss-Schleiz	1,453,363	1,435,053	1,424,473
Schaumburg-Lippe	702,947	685,659	510,000
Reuss-Greiz	845,732	845,732	450,537
Hamburg	41,644,472	41,644,472	218,793,227
Lübeck	3,212,825	3,212,825	14,116,000
Bremen	11,105,262	20,600,950	57,107,550
Alsace-Lorraine	43,793,633	41,235,252	26,356,000

These figures refer in most instances to the year 1889, and in others to 1888. The revenue and expenditure of Mecklenburg-Strelitz are not separated from the private accounts of the grand duke, and are never published. The debts of most of the states were incurred chiefly for railroads, and in several instances are more than covered by the value of productive property. The railroad debts were increased in ten years from 1,498,858,100 marks to 4,647,534,040 marks at the end of the financial year 1889-'90.

In the Prussian budget for the year ending March 31, 1889, the revenue from domains and forests is estimated at 81,649,924 marks; from direct taxes on lands, houses, and incomes, the class tax, and trade taxes, 156,434,300 marks; from indirect taxes, 67,844,000 marks; from the lottery, 8,222,700 marks; from mines and furnaces, 109,618,136 marks; from railroads, 720,255,519 marks; from the finance administration, 200,950,085 marks; from other state administrations, 63,857,457 marks; from other sources,

1,896,800 marks. The working expenses of the Ministry of Agriculture, Domains, and Forests are estimated at 39,284,690 marks; of the Ministry of Finance, 43,902,650 marks; and of the Ministry of Public Works, 94,666,077 marks for mines, etc., and 475,988,691 marks, making the total working expenditure 653,842,108 marks. The administrative expenses of the departments of State are estimated altogether at 289,077,742 marks, and the interest on the debt and other fixed charges foot up 419,203,817 marks, making the total ordinary expenditure 1,362,123,667 marks, to which must be added 48,605,254 marks of extraordinary expenditure. The Prussian Diet in 1889 agreed to increase the King's civil list by 3,500,000 marks, Richter, Virchow, and five other Radicals being the only opponents of the bill. The general rise in prices was given as the reason why the royal household could no longer be maintained on 12,000,000 marks a year.

The Army.—By the new septennial law, which continues in force till March 31, 1894, the peace effective of the land troops is fixed at 468,409 rank and file, or about 492,000 men including officers, surgeons, and paymasters. The following table gives the strength of the active army in 1888-'89:

DESCRIPTIONS OF TROOPS.	Officers.	Men.
Infantry	11,124	331,296
Cavalry	2,358	65,438
Field artillery	1,939	38,642
Fortress artillery	732	17,324
Pioneers	562	12,381
Train	256	6,174
Special formations	359	922
Staff, etc.	1,964	216
Total peace footing	19,294	472,388

The number of horses of the peace establishment is 84,091; of field guns, 1,374. The war strength of the German army is 1,567,600 officers and men, with 312,730 horses and 2,958 guns. If the Landsturm is included, the total number of trained soldiers is at least 2,650,000. The total number of men available for war is estimated at 5,670,000. The infantry of the line is organized in 166 regiments of 3 battalions. Of riflemen there are 21 battalions. The cavalry consists of 93 regiments, the field artillery of 37 regiments, and the fortress artillery of 14 regiments. There are 19 battalions of pioneers, besides a regiment and a battalion of railroad troops and a balloon detachment. The train is organized in 18 battalions. The ordinary German battalion numbers 544 men, and in time of war is raised by calling in the reserves to 1,002 men, divided into four companies of 250 men each. Two battalions form a regiment, and two regiments a brigade. To each infantry division of two brigades four squadrons of cavalry and four field batteries of six guns are attached, with a battalion of either riflemen or engineers. An army corps comprises two infantry divisions, a cavalry division of four regiments with two batteries of horse artillery attached, and seven reserve batteries of field artillery, one of them mounted, besides a battalion of pioneers and one of train. The seventeen *corps d'armée* are territorially organized, and are named after their districts. The eleven first are the Prussian corps,

bearing in the order of their numbers the names of the provinces of Prussia, Pomerania, Brandenburg, Saxony, Posen, Silesia, Westphalia, Rhineland, Schleswig-Holstein, Hanover, and Hesse-Nassau. The Twelfth Corps is the Saxon, the Thirteenth and Fourteenth those of Würtemberg and Baden, and the Fifteenth the corps garrisoning Alsace-Lorraine, which last has battalions of 686 men on the peace footing, like the guards. The First and Second Royal Bavarian Corps stand under the immediate superintendence and administration of the King of Bavaria. The Prussian Guards constitute a separate unnumbered *corps d'armée*.

The smokeless powder was satisfactorily tested in the autumn manœuvres of 1889. The chief advantage of this powder is that it enables infantry to take a clear aim. The magazine rifle with ordinary powder would possess no superiority over the breech-loader, because rapid firing would fill the air with smoke, quite obscuring the field of vision. But scarcely less important, especially in contending against cavalry, is the disadvantage at which the foe is placed, who is unable to discern from what quarter the fire is given. Novelties in the defense of earth-works are wire fencing to obstruct a bayonet attack and movable ironclad turrets containing Schumann revolving guns. The employment of carrier pigeons and dogs as bearers of dispatches was also successfully tried during the manœuvres. The Emperor has changed the arms of the cavalry, all classes of which will hereafter bear the lance as the principal weapon. The cuirass in the German army is to be discarded.

In a supplementary budget presented to the Bundesrath in March, 1889, provision was made for an increase of the field artillery on the peace footing by giving each army corps, except the Würtemberg and Alsace-Lorraine corps, two regiments and adding three regiments to the royal Saxon artillery. The reason given for strengthening this arm was the recent augmentation of the French artillery. A difference of opinion between the new chief of the general staff, General Count Waldersee, whose views were shared by the Emperor, and General Bronsart von Schellendorff, who is credited with saying, "It is possible to have too much artillery," led to the retirement of the latter from the Prussian Ministry of War, which he had conducted for six years, and the appointment of General von Verdy du Vernois as his successor in the beginning of April. General Bronsart was said also to be opposed to the new infantry tactics in which an irregular, creeping advance in twos and threes takes the place of the solid front of the old line of battle. General von Verdy has done much by his writings to develop the modern German tactics. In the army budget for 1890 the sum of 6,629,000 marks is added to the permanent expenditure, 1,500,000 marks being devoted to the creation of two new army corps. The extraordinary army estimates amount to 139,500,000 marks, of which 45,750,000 marks are for charges necessitated by the extension of the obligation of military service, and 61,250,000 marks are for the artillery. The two new army corps are formed by the division of the Fifteenth Corps. The Sixteenth Corps will be stationed on the Russian frontier.

The Navy.—The German navy on March 31, 1888, had of the various classes of steam vessels, completed or in the process of construction, the following numbers:

VESSELS.	No.	Guns.	Metric tons.	Horse-power.
Ironclad ships	13	143	88,684	72,400
Ironclad gunboats	14	17	15,514	11,900
Frigate cruisers	8	122	25,490	25,100
Corvette cruisers	10	122	26,653	32,900
Cruisers	5	26	5,132	4,550
Gunboats	5	19	2,449	1,970
Avisos	6	15	7,329	17,800
School vessels	10	78	14,855	10,560
Other vessels	8	13	3,645	5,290
Total	79	555	189,136	182,470

This enumeration does not include the "Irene" and "Prinzessin Wilhelm," launched in 1887, steel, deck-protected cruisers of 4,230 tons, designed for a speed of eighteen knots, and armed with fourteen 6-ton guns. There are, besides, a great number of torpedo boats. Under the new naval administration, the ambition of the Emperor to have a strong war fleet has led to the elaboration of a programme of construction in which heavy ironclads again find a place in spite of the doubts of modern naval critics respecting this costly kind of vessel. The nucleus of the projected fleet will be four battle ships, of about 10,000 tons displacement, armed with heavy guns and all other appliances for offensive warfare, plated with thick armor, and capable of every manœuvre that the progress of naval art makes possible. The plan includes, further, seven protected corvette cruisers of great speed and fuel capacity, with steel deck-armor protecting the machinery, boilers, and ammunition chamber; ten ironclad gunboats with turrets, rams, and torpedo appliances; four unprotected cruisers for the naval stations in the German protectorates; two avisos; and two torpedo vessels. The first of the large ironclads, laid down at Kiel in November, will be completed in 1893. The navy is commanded by an admiral-in-chief and seven admirals, who have under them 823 officers, including surgeons and engineers. The crews, including marines, number 14,743 men and boys. This force is raised by conscription among the seafaring population and by the voluntary enlistment of seamen, of whom there are 48,000 in the German merchant service and 6,000 on foreign vessels. The war strength of the crews in 1888 was 38,700 men.

During the last four years of General von Caprivi's administration of the admiralty department he brought the *personnel*, which in 1884 was 6,000 or 7,000 short of the 30,000 required to man the fleet in time of war, up to that figure by securing enlistments for four years among the inland population, by training young men in the school squadrons, and by the operation of the law of Feb. 11, 1888, to augment the war strength of the crews. In 1889, at the desire of the Emperor, the Reichstag sanctioned a change in the administrative organization of the navy. The administration is separated from the military command and confided to a new department called the Imperial Naval Office under the supervision of the Chancellor, while the command of the fleets and vessels and the direction of purely

naval affairs on sea and land is given to an admiral-in-chief, who will not have to busy himself with legislative and financial matters connected with the navy, but only with the military efficiency of the naval forces.

Commerce and Industry.—The customs territory of the German Zollverein comprises, since October, 1888, when Hamburg, Bremen, and a small district on the Swiss border in Baden were incorporated, the entire political territory of the Empire, except small areas reserved for free docks in Hamburg and Bremen, and beyond the limits of the Empire it includes the Grand Duchy of Luxemburg and the Austrian commune of Jungholz. The value of the general commerce for 1887 was 9,501,994,000 marks, comprising 4,730,381,000 marks of imports and 4,771,613,000 marks of exports. The imports of merchandise for home consumption amounted to 3,124,700,000 marks, and the exports of domestic products to 3,135,200,000 marks. The imports of horses were of the value of 72,049,000 marks, and those of swine 43,658,000 marks, the total imports of live animals amounting to 163,017,000 marks, while the exports were 89,774,000 marks. The imports of cereals were valued at 267,900,000 marks, and the exports at 56,400,000 marks. The import of coffee was 168,025,000 marks; of petroleum, 61,128,000 marks; of tobacco, 75,700,000 marks; of raw cotton, 224,877,000 marks; of wool, 216,151,000 marks; of woolen yarn, 94,374,000 marks; of raw silk, 98,187,000 marks. Some of the largest exports were sugar, of the value of 180,927,000 marks; leather goods, 142,583,000 marks; cotton cloth, 217,536,000 marks; hosiery, 109,879,000 marks; ribbons, etc., 103,741,000 marks; mixed silk and cotton cloth, 147,156,000 marks; paper goods, 94,537,000 marks; machinery and instruments, 124,022,000 marks; hardware, 78,359,000 marks; glass and pottery, 71,500,000 marks; jewelry and works of art, 116,800,000 marks; wooden wares, 107,531,000 marks; coal, 89,333,000 marks; books, etc., 38,500,000 marks; aniline dyes, 42,539,000 marks; hops, 31,503,000 marks. The imports of precious metals in 1887 amounted to 64,092,000 marks, and the exports to 54,862,000 marks.

The sum of the special imports for 1888, inclusive of precious metals, was 3,435,900,000 marks; of the special exports, 3,352,600,000 marks. The merchandise imports amounted to 3,290,700,000 marks and the exports to 3,205,900,000 marks, showing an excess of imports of 84,800,000 marks. There was an increase in the imports of coal, timber, nitre, ores, and stone. The exports show an inconsiderable increase in the total, owing chiefly to the decline in the sugar export and to the marked falling off in the exports to Austria-Hungary and Italy, which were higher than usual in 1887 on account of the impending rise in the tariff that went into effect in 1888. A comparison of the totals with the preceding year is misleading on account of the incorporation of Hamburg and Bremen in the Zollverein. An analysis of the returns shows diminished imports of animals and animal food products, cereals, and iron manufactures, and an increase in the imports of coffee, spirits, petroleum, and materials for the chemical, tanning, textile, and paper industries. Owing to the increase in the grain duties, the import of wheat fell off from

547,000 to 330,000 metric tons, and that of barley from 511,500 to 444,000 tons. The exports that showed the largest gains were coal and coke, ores, fertilizers, potatoes, flour, fruit, oils, chemical products, paper materials, textile materials, and machinery. The articles of export that show the greatest falling off are (besides sugar) salt, coffee substitutes, spirits, earthen and porcelain wares, raw and manufactured metals, timber, wooden wares, paper, textiles, and railroad cars. The export trade in cotton goods, dresses, linens, half silks, and woolen goods has recently declined, and there has been a more serious decrease in iron manufactures, which declined nearly one half between 1886 and 1888. The returns for the first half of 1889 show a marked decline in some classes of goods that have heretofore steadily advanced, such as glassware, leather, and leather goods, and decreases in the exports of alcohol, beer, and paper, while in sugar there was some recovery. The United States customs authorities have lately refused to accept the valuations given by exporters of cloaks and other garments. The German export trade has undergone considerable changes in recent years. The countries that participate most largely in the foreign commerce are, in the order of their importance, Great Britain, Austria-Hungary, France, Belgium, Netherlands, the United States, Russia, Switzerland, and Italy. The once large export trade to Russia has fallen away, owing to protective duties, and the trade with Austria and France has also declined, while that with southern Europe, and especially with Italy, has made up a great part of the loss. But the extension of German trade since 1880 has been chiefly due to the augmented demand for German goods in Great Britain, partly for re-export to Australia and other countries, in the United States, and in the countries of South America, where the Hamburg merchants have made particular efforts to extend their trade.

The area devoted to wheat in 1888 was 1,919,662 hectares, producing 2,830,804 metric tons or 99,640,000 bushels; the area under rye, 5,842,280 hectares, producing 5,375,734 tons; under barley, 1,731,121 hectares, producing 2,205,504 tons; under oats, 3,810,244 hectares, producing 4,301,407 tons; under potatoes, 2,918,147 hectares, producing 25,272,998 tons. The vineyards, covering 120,210 hectares, yielded 2,392,042 hectolitres or 52,624,924 gallons of wine. The product of sugar in 1888 was 1,475,827 tons; of tobacco, 90,114,000 pounds.

The value of coal and lignite mined in 1887 was 351,278,000 marks; of iron ore, 34,005,000 marks; of zinc ore, 10,022,000 marks; of lead ore, 15,923,000 marks; of copper ore, 14,552,000 marks; of mineral salts, 14,947,000 marks; of other salts, 38,122,000 marks. The total value of minerals produced in Germany and Luxemburg was 449,000,000 marks. The pig iron product was 4,023,953 metric tons of 2,200 pounds, valued at 166,443,000 marks. The quantity of manufactured iron was 3,496,117 tons; the value, 442,525,000 marks.

Navigation.—The merchant navy, in the beginning of 1888, numbered 3,811 vessels, of 1,240,182 tons. There were 717 steamers, of 470,364 tons, and 3,094 sailing vessels, of 769,818 tons. Of the steamers 333, of 117,240 tons, belonged to

the Baltic ports, and 384, of 358,124 tons, to the ports of the North Sea; and of the sailing vessels there were 1,037, of 235,292 tons, sailing from Baltic ports, while 2,057, of 534,526 tons, belonged to the North Sea ports. At the beginning of 1889 the number of sailing ships had decreased by more than 200, causing a decline in the aggregate tonnage of registered vessels to 1,233,894, notwithstanding the addition to the merchant navy of 47 steamers, of 32,215 tons. The crews of the sailing vessels decreased from 21,220 to 19,574 men, while those of the steam fleet increased from 15,856 to 16,684 men.

The subsidized steamship lines to Australia and eastern Asia, which began operations in 1886, make quicker voyages than almost any other lines, the steamers averaging usually 14 knots. This advantage will be retained, as the steamship companies intend to replace their Atlantic liners which have developed a speed of 18 knots, with larger and faster vessels, to employ the old steamships on the Indian and Pacific Ocean routes.

The number of vessels entered at German ports during 1887 was 62,382, of the aggregate tonnage of 10,994,680; and the total number cleared was 62,327; the tonnage, 11,076,273. The number entered with cargoes was 52,344, of 10,072,566 tons; cleared with cargoes, 47,303, of 8,240,626 tons; entered in ballast, 10,038 vessels, of 922,114 tons; cleared in ballast, 15,024 vessels, of 2,835,747 tons. A little more than 50 per cent. of the total tonnage entered and cleared was German, and 27½ per cent. was British.

Railroads.—The total length of railroads in operation in 1888 was 25,127 miles, of which 21,710 miles were the property of the state. The total amount of capital invested in railroads at the end of the financial year 1887 was 9,843,708,000 marks. The receipts during that year were 1,026,361,000 marks, and the expenses 574,935,000 marks, leaving a net profit of 4½ per cent. on the capital. Although the public debts of the states have been greatly increased by the nationalization of the railroads, the profits of the lines, with the funds for construction and the extinction of debts that were turned over by the companies, amounting altogether to 1,006,362,000 marks, have more than paid for the construction of between 6,000 and 7,000 new railroads since 1880, which cost 995,182,000 marks.

Telegraphs and Post-Office.—The total length of telegraph lines in the beginning of 1888 was 55,748 miles; the length of wires, 198,214 miles. The number of dispatches in 1887 was 21,750,348, of which 15,117,328 were internal.

The imperial post-office and the separately administered royal post-offices of Bavaria and Würtemberg carried together 897,765,900 letters, 276,588,710 postal cards, 20,340,490 samples, 275,267,320 sealed wrappers, 624,818,320 newspapers, and 97,847,330 unregistered packages in 1887. The money remittances were worth in the aggregate 18,927,634,555 marks. The receipts of the post-office and telegraphs in 1887-'88 were 213,446,446 marks, and the expenses 183,144,491 marks. The number of persons employed in the postal and telegraph services at the beginning of 1888 was 101,208.

Dependencies.—Before 1884 Germany had no possessions beyond the seas. The following

table shows the acquisitions that were made from that year to the end of 1888, with their approximate area in square miles:

PROTECTORATES.	Area.
IN WEST AFRICA:	
Togoland, Porto Seguro, and Little Popo	400
Cameroons	115,000
IN SOUTH AFRICA:	
Damara and Great Namaqua Lands	230,000
IN EAST AFRICA:	
Usagara, Ukami, Nguru, and Usegua	60,000
Wituland	520
Other territories	240,000
IN THE WESTERN PACIFIC:	
German New Guinea	70,300
Bismarck Archipelago	18,150
Solomon Islands	8,500
Marshall Islands	150
Total	743,020

The population of Togoland and the stations on the Slave Coast is about 40,000. The South African territories have about 200,000 inhabitants. Kaiser Wilhelm's land in New Guinea has a population of 109,000, and New Britain and other islands of Bismarck Archipelago contain approximately 188,000 inhabitants, the Solomon Islands 90,000, and the annexed islands of the Marshall group 10,000.

The Hanseatic syndicate for whose behoof the Togo and Cameroon protectorates were established declined to assume the political jurisdiction, and therefore the Government was compelled to send out a staff of officials to administer those territories as crown colonies. For similar reasons an imperial commissary was appointed for Southwest Africa. The New Guinea possessions have also been transferred to the administration of the Government, and in East Africa political difficulties of the company have led to the blockade of the coast, and necessitated the supersession of the political powers of the company by an imperial commissary with military forces under his command (see ZANZIBAR). The cost of administering the colonies of West Africa is in great part defrayed from the duties collected by the officials. The revenue of Togo is estimated in the budget of 1889-'90 at 167,000 marks, and the expenditure at 178,000 marks; the revenue of Cameroons at 76,000 marks, and the expenditure at 94,000 marks.

The Emperor gave his approval on May 17, 1889, to an alteration in the statutes of the New Guinea Company, transferring the civil authority and administration of the laws to the Imperial Government, while the company retains the monopoly of the right of acquiring land. The imperial commissary with his official staff entered on his duties in October. The company has raised experimental crops of tobacco in Kaiser Wilhelm's Land that brought a fair price. Nevertheless the enterprise has lagged, and the assistance of the Government was necessary to save it from failure. The Germans have not been able to teach the natives of New Guinea to labor, and even the Solomon Islanders and other islanders that are used to work on plantations have a dread of them. Cotton, as well as tobacco, has been proved a promising crop. But German capitalists prefer to invest in the plantations of Borneo and Sumatra, and small cultivators can not be induced to emigrate to the German colony.

When Prince Bismarck expounded the new

colonial policy in 1884 and 1885, the intention was that it should be confined to the granting of *Schutzbriefe* after the model of the royal charters formerly issued by the English Government to proprietary companies. The colonial empire—greater in extent than Germany—was acquired without effort on the part of the Government, except in the field of diplomacy, but since then it has become evident that sacrifices are necessary to bring the colonial undertakings to a successful issue. The Hamburg merchants are not inclined to invest capital in those regions simply because they have been proclaimed German territory, and still less to support their civil administration. Much of the stock of the colonial companies was taken from patriotic or political motives by people of inland cities, and when their enthusiasm subsided, the enterprises seemed likely to perish, unless the Government did something to facilitate German trade with the new protectorates. Therefore the administration of the laws has passed into the hands of the imperial authorities, and naval and military operations have been begun for the purpose of removing the obstacles to trade. On the west coast of Africa the Germans are proceeding to break down the trading monopolies enjoyed by the tribes near the coast and secure a free right of transit to white traders and natives of the interior. On the east coast the Arab traders in slaves, ivory, and other products constitute the hindrance to German trade that the Government has undertaken to clear away. The agricultural enterprises in the German colonies can only be carried on by means of colored labor. In Africa this is usually slave-labor, the slaves being hired from their owners for a term of years. In the Reichstag, Herr Woermann—who was one of the founders of the colony of Cameroons—in reproaching Herr Richter for his ignorance of colonial affairs, had no hesitation in avowing that in the German establishments on the west coast of Africa slaves are constantly employed, and that the managers enter into contracts with slave-traders to obtain the necessary hands. The slaves, he said, are better off than freemen, and would die of hunger if they were not so employed. In the South Sea the system of indentured labor, which is practically a species of temporary slavery, is in vogue. The Progressists, who have consistently opposed colonial expansion, criticised the Government for instituting a crusade against the slave trade, and at the same time permitting the existence of slavery in the German colonies, and even encouraging colonial undertakings that depend on slave labor for their success. The sale of gin by German traders on the west coast of Africa ought likewise to be prohibited according to the views of the Chancellor's opponents, as it has been in the English protectorates and in the Congo State. Outside of the trade in alcohol and firearms, which other nations try to suppress, the German commercial dealings on the west coast amount to very little. The alcohol trade reaches the figure of 12,000,000 marks, or one third of the whole commerce. Prince Bismarck defended the policy of permitting slavery, saying that an institution that had existed for thousands of years could not be at once suppressed, and that if the German Government should prohibit the hiring of

slaves in the factories and plantations it would not merely injure German interests, but would incur the ill-will of foreign nations. In the extraordinary estimates for 1890-'91 there is an item of 166,800 marks for a police force in the Southwest African protectorate.

In the Togo district Dr. L. Wolf—the leader of an exploring expedition—involved himself in hostilities with the Kebu tribe in January, 1889. He killed their principal chief, and destroyed their dwelling-places. In Cameroons the Germans interfered in a feud between the Bomboko and Rumby that arose from the accidental killing of a woman. In February an expedition was undertaken in the Cameroon territory against the Lukullo negroes, who wounded some of the German marines in a fight. On Feb. 10, 1889, a party of marines burned Bibundi and another village on the coast because the inhabitants assisted the enemy.

Social Legislation.—The old-age and infirmity insurance bill is the last and most important installment of the scheme of state socialism that was unfolded in the message of the Emperor Wilhelm I to the Reichstag on Nov. 17, 1881. The first of the socialistic measures was the bill for insurance against sickness, which became law in 1883. By the operation of this law workmen are compelled to pay from $1\frac{1}{2}$ to 2 per cent. of the normal local wages, as ascertained by the civil authority in consultation with the officials of the commune. In return for these payments—which are stopped from their wages—they receive treatment and medicines in case of sickness and half wages, measured by the normal local rate, for a period not to exceed thirteen weeks. If one is removed to a hospital his family receives half of his allowance. Sick insurance is compulsory, but is not yet extended to persons employed in agriculture or forestry, or to commercial employes or domestic servants. Employers are compelled to contribute one third of the amount of the sick funds, while the state gives one third, and the workmen's contributions furnish the remainder. The funds are administered by self-governing, independent local unions, containing an average of 600 members, who consist of workmen and masters in the proportion of two to one.

The second measure was the law of forced insurance against accidents, the first part of which was passed by the Reichstag on June 27, 1884, after a long contest with the opponents of Government interference. It was extended at first only to trades in which the risk of accidents is greatest, and has since been extended to the building trades, to agriculture, and to seafaring and the inland boat traffic. Its extension to persons employed in small industries and in domestic service in towns is contemplated. Trades are combined in the same category in which the risks are equal. In 1886 there were 64 trade associations, embracing between 3,000,000 and 4,000,000 workmen. Payments are assessed on employers in proportion to the risks of the industry and the number and average wages of their workmen. The contributions are sufficient to pay the premiums and to build up a reserve fund. In 1888 the payments for insurance alone amounted to $\frac{1}{10}$ of one per cent, and the expenses of administration to $\frac{1}{10}$ of one per cent.

of the total annual wages. The expenditure will reach a higher figure. For complete disablement the workman receives two thirds of the regular wages unless they exceed four marks per diem, in which case the proportion is smaller. For partial disablement the payments are adjusted equitably. In case of death by accident 20 days' wages are paid for funeral expenses and an allowance of 20 per cent. of the wages of the deceased is given to the widow, with 15 per cent. additional for each child under fifteen years of age. The masters administer the funds, and can apply part of them to measures for the prevention of accidents. On the board of central control and on the courts of arbitration the workmen have representatives.

The system of old-age and infirmity insurance includes in its scope all persons of either sex above the age of sixteen years who work in a dependent position for wages. Persons in a similar condition in life to wage-earners, such as sub-contractors and independent artisans who themselves employ no workmen, can be admitted to the benefits of the act, at the discretion of the Federal Council. Existing government and local institutions for similar purposes will be preserved and incorporated in the general system, if they obtain the approval of the Federal Council. Workers are divided into four classes, according to the amount of their annual wages. For those who earn less than 350 marks the premium is 12 pfennigs or about 3 cents a week, which is paid by the employer, who deducts one-half from the weekly wages, the other half being his own contribution. For the second class, embracing those whose wages range between 350 and 550 marks, the premium is 18 pfennigs; for the third class, earning from 550 to 850 marks, it is 24 pfennigs; and for the fourth class, earning more than 850 marks per annum, it is 30 pfennigs weekly. The person insured is entitled to a pension till recovery, if he is temporarily incapacitated, and for life, if his disability is permanent. No one is regarded as incapacitated within the meaning of the act who is still able to earn one sixth of his average wages for the last five years added to one sixth of the average local rate of wages. On reaching the age of seventy the insured person is entitled to receive an old-age pension, whether he is still able to earn wages or not. When an invalid pension is granted, the old-age pension lapses. The insurance year is reckoned as 47 weeks. While sick and while on military duty the insured is credited on his insurance card as though he had made payments in the second class. No one is allowed an invalid pension before he has made payments for 235 weeks, equal to 5 years, and when incapacitated the amount of the pension is proportionate to the length of time that he has contributed to the fund. The Government gives 50 marks a year to every invalid and superannuated pensioner. Beyond this uniform imperial contribution each invalid pensioner receives 60 marks per annum from the insurance fund and 2, 4, 9, or 13 pfennigs for every week that he has paid, according as he belongs to the first, second, third, or fourth class. After five years of payments the invalid pension in the lowest class amounts to 114 marks 70 pfennigs, and after fifty years of payments it is 157 marks.

In the second class the insured receives 119 marks 40 pfennigs if invalidated at the end of five years, and if he has paid into the fund for fifty full years his pension amounts to 204 marks. In the third class it rises from 131 marks 15 pfennigs for five years of payments to 321 marks 50 pfennigs for those who have paid into the fund for a half-century, and in the fourth class from 140 marks 55 pfennigs to 415 marks 50 pfennigs. If a woman who has paid for five years or more marries, and thus loses her right to an invalid pension, the amount of her contributions is returned to her without interest. When a man whose assessments have been paid for the prescribed five years dies without having received an invalid pension or accident compensation, his widow or dependent family can reclaim the amount of his contributions. The consideration of different treatment for workers of different occupations in which the risks of becoming incapacitated are unequal was left to be decided later in the light of fuller statistics than are now obtainable. A person who has passed out of the class of dependent workers may preserve his right to invalid insurance by paying the weekly quota of the second class, with 8 pfennigs additional to cover the imperial contribution. The last condition is not exacted in the case of workers who have become independent but do not employ others. When a worker fails to make 47 weekly payments during four consecutive years, his claim for insurance lapses. When an insured person passes from one class of wage-earners into another, it is easy to calculate the amount of his past contributions and adjust them to the scale of the higher class. Old-age pensions are only earned by paying insurance premiums for at least 1,410 weeks or thirty years. They consist of the imperial contribution of 50 marks and a variable sum obtained by multiplying 4, 6, 8, or 10 pfennigs by the number of weekly payments that have been made in the respective classes up to 1,410. If more than that number of payments have been made, those paid in the highest classes can be reckoned. For a person who remains in the first class for the entire thirty years, the superannuation pension is 106 marks 40 pfennigs; in the second class it is 134 marks 60 pfennigs; for the third class, 162 marks 80 pfennigs; for the fourth class, 181 marks.

The act, which probably will enter into operation in 1891, imposes a considerable amount of additional work on postal and other officials, and calls for the services, mostly unpaid, of members on the district boards, tribunals of arbitration, local officers to certify local cases, and councils of supervision. This vast machinery would be subjected to a severe strain in case a war should call away a part of the force charged with the duties of registering, supervising, and arbitrating insurance. The number of working people included in the scope of the act is estimated at 11,000,000. Each workman has a card on which are 47 spaces for stamps, which are issued by the insurance board of the district. The employers obtain the stamps from the post-offices and affix them to the cards. When the card is full, or at the latest before the end of the second year after the year of issue, it is filed away in a public office and a new one is issued. An insurance in-

stitute will be established in each district, the districts coinciding with the provinces in Prussia and, as a rule, with the Federal States elsewhere. A committee of representatives of employers and workmen will draw up the statutes of each institute, which will be managed by a governing board, the members of which may in the future receive salaries. Claims for pensions are presented before a local board, and must be ratified by the governing board. A council of arbitration, composed of representatives of masters and men, with a permanent professional president, decides appeals against the refusal of a pension, and on legal grounds the case can be carried before the Imperial Insurance Board. An imperial commissary is attached to each insurance institute to look after the interests of the Government and of the other institutes. The funds of the insurance institutes may be invested in interest-bearing securities, and even in land, greater latitude being given than in the ordinary disposal of trust funds. The pensions to be paid out will be light at first, and will steadily increase in the aggregate amount during a period of many years, until the full pressure of the act is felt. The Bundesrath proposed to calculate the present capital value of all obligations incurred from the starting of the scheme, and accumulate a capital to meet the future claims. This plan was rejected, partly because it would withdraw a capital of at least 2,000,000,000 marks from ordinary enterprise, and partly because it would impose burdens on the insured workmen and their employers that would make the scheme unpopular. Therefore, it was decided to calculate the contributions at a rate that would meet the obligations of the first ten years and accumulate a reserve fund of 20 per cent., and after that to adjust them for each succeeding period of five years until an equilibrium is reached. By that time, it is believed, the contributions will be double their present figure. The bill, although involving the state directly in obligations the capital value of which is reckoned at 1,556,000,000 marks, and indirectly to at least twice that extent, was based in its actuarial features on very incomplete and contradictory statistical data regarding the conditions of health of the working classes and the probabilities of incapacitation. The latter were assumed to double with each successive period of five years. The cost of administration is reckoned at 1 mark per annum for each insured person, not including the extra work required of the ordinary administrative officials, nor the services of the great body of insurance functionaries who are required to serve without pay. The annual burden incurred by the state in making good the payments of workmen during their military service and on account of its own employés is estimated at 8,000,000 marks per annum. The provision for old-age pensions was denounced as illusory by the Social-Democrats, who showed by statistics that the proportion of workmen who attain the age of seventy is inappreciably small.

The Reichstag passed the bill on May 23, and on the following day was prorogued. The old-age and infirmity insurance bill was approved by the Bundesrath on June 5, and was signed by the Emperor and the Chancellor on June 22. The bill passed the Reichstag by the narrow ma-

jority of twenty votes. The bulk of the Center party voted against it, not through hostility to the principle of insurance, but because it would impair the influence of the Church by transferring to the state the care of the indigent. About a dozen of the party, chiefly nobles, decided the fate of the measure by voting with the Government. The Liberalist party, as upholders of the principles of individualism and self-help, opposed the bill. Some of the Conservatives were found among the enemies of the bill because it favored the industrial western provinces at the expense of the eastern provinces, where the land-owners, already suffering from foreign agricultural competition and loaded with debts, would probably have to reduce their rents. The Social-Democrats, while claiming the bill as the result of their agitation, voted against it because it did not go far enough. The Chancellor, in a scornful speech that he made in the Reichstag on May 18, accused the Liberalists of opposing the bill because they allowed their personal hatred toward him to outweigh their concern for the good of the Empire, which caused one of them to call out "Fy!" drawing a wrathful rebuke from Bismarck, who said that as a Christian he could endure such insults, but as Chancellor he must retaliate. The opposition of the Poles and Alsatians he attributed to hostility to everything that tended to consolidate the empire, expressing a regret that the latter had been admitted to the Reichstag, as "we had certainly not carried on the war in order to inoculate ourselves with fourteen Frenchmen." The Social-Democrats rejected the remedy for social distress furnished by the bill, he said, because it would appease popular discontent and deprive the leaders of their following; but the Social-Democrats could not be accounted a political party, but rather sworn enemies of the state, whose aim was to sow the seeds of civil war and bring about an uprising of the labor battalions. Herr Bebel replied to the Chancellor that the Social-Democratic party desired no upheaval that would unsettle the foundations of modern civilization, that they expected to accomplish no revolutions by means of street insurrections and barricades, but that their weapons were ideas, with which they had achieved a satisfactory success, for since their agitation began the Chancellor had surrounded himself with socialistic advisers, and the Government proposes and carries through measures for the protection of workmen that it had set its face against twenty years before.

The Anti-Socialist Law.—The exceptional law against Socialist, Social-Democratic, or Communistic efforts directed to the overthrow of the existing Constitution in a way endangering the public peace, and especially harmony between the various classes of the community, was first passed in 1878 in consequence of attempts upon the life of the Emperor. It has since been renewed from time to time with modifications that were intended mainly to make the law more stringent. The effect of the law was to drive the revolutionary Socialists out of the country, and at first to disorganize the Social-Democratic party to such an extent that the number of Socialist members of Parliament was reduced one half. Latterly the organization of

the party has been made stronger than ever, and the Social-Democrats are as numerous in the Reichstag as before, although the only Socialist newspapers in circulation must be smuggled from foreign countries and secretly passed from hand to hand, and no Socialist is permitted by the police to address a meeting. The vitality of the party has convinced the German Government that the law intended for the suppression of the Social-Democrats must be continued in order to prevent their triumph. Although they protest their adherence to constitutional action, Prince Bismarck brands them as public enemies with whom he is in a state of war, as with the French. The Government in 1889 proposed, instead of a renewal of the exceptional anti-Socialist law, that it should be made permanent by the incorporation of its provisions in the common law. The leader of the Socialists, Liebknecht, said in the Reichstag that they need not care whether they were "grilled under exceptional laws or stewed under the common law." The rebukes addressed recently by the Emperor to the press, Prince Bismarck's bitter denunciation of political enemies, and various acts of the police, especially the confiscation of the Berlin "Volkszeitung," excited the suspicion that an alteration of the press laws would affect others besides the Social-Democrats. The "Volkszeitung" was a Radical Democratic newspaper, having no connection with the Social-Democrats, which entered with spirit into the controversy between the advocates of liberalism and absolutism that followed on the death of the Emperor Friedrich. It shocked the court by saying that the Emperor Wilhelm I cared more for the family of Hohenzollern than for Prussia, and angered the Chancellor by denouncing his reactionary tendencies. Finally the police suppressed the paper on March 17, on the ground that an article saying the revolutionists of 1848 would view with shame the present condition of Germany was an infraction of the anti-Socialist law. The publishers changed the editors, and under a new title every day attempted to issue papers containing no questionable matter, but everything was confiscated, even a sheet containing nothing but advertisements. They lodged a complaint against the action of the police with the Minister of the Interior and with the imperial commission for appeals against applications of the anti-Socialist law. The commission, consisting of four members of the Federal Council and six judicial functionaries, decided on April 9 that the obnoxious article contained nothing that came within the provisions of the anti-Socialist law. A charge of *lèse majesté* was dismissed by the criminal court, because Wilhelm I, who was referred to in the article forming the subject matter of the accusation, was dead. For attacking Prince Bismarck the editor was sentenced to pay one hundred and fifty marks fine and be sent to jail for two weeks.

Soon after the interdict on the "Volkszeitung" was dissolved the changes in the criminal code that were intended to take the place of the anti-Socialist laws were presented before the Bundesrath. Assaults on the Government and the calumny of officials were among the new crimes to be created, and unfavorable discussion of the institutions on which the state is based,

namely, monarchy, religion, marriage, and property, was declared a penal offense. The bill was framed to the particular liking of the Emperor. Yet almost the entire press of the country expressed doubt and dismay. The representatives of Bavaria and Saxony in the Bundesrath protested that it would imperil public order if adopted. The leaders of the National Liberal party objected strongly to the measure. The Chancellor finally obtained the Emperor's consent to its being remodeled. It was referred back to the commission, but was not brought forward again during the session. The obnoxious provisions were nearly the same as those of a project for a "muzzle" law, as it was called, that was rejected by an overwhelming majority in 1875. In the autumn the Federal Council and the Reichstag gave their consent to another bill, a permanent anti-Socialist law, the provisions of which were based on the exceptional law, with some of the restrictions and penalties mitigated. Several amendments were made before the Reichstag would agree to the perpetuation of the law which two years before it had refused to prolong for five years. The provisions that enabled the authorities to impose stringent restrictions on agitators in respect to their place of residence and business were stricken out. A special court composed of eleven judges of the superior courts of justice is instituted for the purpose of protecting citizens against the unconstitutional application of the law. The court will hear and sift all petitions against proceedings of the executive authorities under the anti-Socialist law. The judges are appointed by the Federal Council, except the president, who is nominated by the Emperor. Agitators can be expelled by the police, in districts proclaimed under the minor state of siege, for one year, and at the expiration of that period they can only return by permission of the district police authorities. Other special restrictions connected with the lesser state of siege are discontinued. Periodical publications under the new law can not be prohibited on the confiscation of a single number, but only after numbers have been repeatedly interdicted. On Sept. 27 ministerial decrees were published extending till Sept. 30, 1890, the minor state of siege in Berlin, Altona, and Frankfort-on-the-Main.

Clerical Demands.—Herr Windhorst, on Feb. 22, 1889, offered in the Prussian House of Deputies a resolution embodying the demands of the Center party in respect to the religious control of primary education. In the name of his party and of the 15,000,000 Catholics of Germany, he asked the Government to introduce measures restoring the conditions existing prior to the school law of 1872 and the edict of Minister Falk, and thus bring the laws into conformity with the article of the Constitution which prescribes that religious instruction in the public schools shall be directed by the respective religious societies. This constitutional provision guarantees the following rights, which ought to be embodied in law to satisfy the Catholic community: 1, only those persons should be called to the office of teachers in the common schools against whom the ecclesiastical authorities make no objections of a theological or religious character; and if such objections are raised later against a teacher,

he should no longer be permitted to impart religious instruction. 2. The right to designate the functionaries that are entitled to direct religious instruction in the individual schools belongs exclusively to the superior ecclesiastical authorities. 3. The ecclesiastical functionaries that are authorized to direct religious instruction should be allowed either to impart religious instruction themselves in accordance with the prescribed educational regulations, or to supervise the instruction of the teachers, and to intervene with corrections and give directions, which must be followed; the ecclesiastical authorities should have the right to prescribe the text-books for religious instruction and exercises and the character and extent of the religious teachings in the various classes of the common schools. These propositions of the Clerical leader were not offered with any hope of their adoption, since the Conservative party, as well as the Government, was opposed to further disturbance of the educational system, but only to formulate a list of grievances, a programme of discontent that would keep his party alive. Later in the session he raised other questions, demanding the creation of a separate Catholic department in the Ministry of Worship as a step toward the establishment of an independent Catholic ministry. The administration of ecclesiastical estates he desired to see confided to the authorities of the Church, and he would abolish the right of the civil authorities to interfere in the appointment of priests.

The Bavarian Government has not lived on good terms with the upper clergy since the question of state education arose, and since it countenanced the Old Catholic schism the relations have been strained. The bishops had no more reason to expect concessions from the Prince Regent than from the late King, particularly while Baron von Lutz remains at the head of the ministry. Nevertheless, they addressed a memorial to the Regent on June 14, 1888, expressing demands that Prince Liechtenstein would not venture to raise in clerical Austria. They contested the right of the state to exercise its right of supervision over the legislative, administrative, and judicial powers of the Church. The requirement of the royal approval for ordinances and publications of the Church they objected to as opposed to freedom of the press. The law requiring the royal consent to the admission of foreign missionaries they characterized also as an oppressive restriction on the free exercise of episcopal rights. The Old Catholics, they demanded, should be suppressed. Their chief grievance related to religious instruction. The spirit that reigned in the universities, they complained, was often opposed to Christianity, especially in the philosophical, scientific, and medical faculties. They demanded that candidates in theology should be permitted to study in Rome, that the bishops should have the entire selection of professors of theology in the universities and lyceums, that teachers of profane, literary, and ecclesiastical history should be men of orthodox religious views, and that mass should be said daily in the gymnasia. They objected to the normal schools of mixed confessions, and also to the mixed elementary schools, and in Catholic schools they demanded complete direction of religious

instruction and the exclusion of all freethinkers and members of secret societies from the body of teachers. They asked, furthermore, that all decrees against the Redemptorists and other religious congregations should be revoked, and that theological students should be exempted from military service. The Minister of Worship and Education, Baron von Lutz, replied circumstantially to this document on March 28, 1889, offering minor concessions, while condemning the general demands of the prelates. In the appointment of theological professors, of district school inspectors, and of inspectors of the teachers' seminaries, he renewed the assurances given in 1882, that any recommendations or objections of the diocesan bishop would receive consideration. He agreed to the withdrawal of royal commissaries from chapter meetings for the election of heads of convents, and to examinations on religious subjects in the gymnasia, and promised that theological candidates should receive considerate treatment while in the army.

Criminal Jurisdiction in Foreign Countries.—Crimes committed in foreign countries have not hitherto been punishable by German law. Some jurists have held that Germans can be held amenable to the law for their acts in barbarous regions where no civilized system of jurisprudence exists, but later authorities have rejected this theory. The increasing numbers of German traders, colonists, explorers, and adventurers in all parts of the world suggested this defect to the notice of the lawgivers, who at the same time decided to assume the same jurisdiction that is claimed by some other European states over crimes affecting them or their citizens committed in foreign countries. A law was accordingly passed by the Bundesrath and the Reichstag which ordains that any German or foreigner can be tried and punished according to the laws of the Empire who commits in a foreign country an act of high treason against the German Empire or against one of the Federal States or counterfeits German money or is guilty of any felony or crime against a German subject, or as an official of the Empire or of a state is guilty of criminal malfeasance; likewise any German who in a foreign country commits an act of treason felony against the German Empire or one of the Federal States.

Labor Strikes.—The most serious strike that ever occurred in Germany began in the coal mines of Westphalia and the Rhenish province in the early part of May. There had been rumors of unusual activity among the Social-Democrats, of the accumulation of strike funds, and of a threatened stoppage of labor in Hamburg, Elberfeld, and other manufacturing cities. When the miners of Bochum, Dortmund, and Essen struck work the Socialists were supposed to have been the originators of the trouble, although they were not known to have many followers among that class of laborers. On closer investigation it was found that the strike was the result of difficulties of long standing, and that it had been many months in contemplation. The strikers called for the redress of grievances that had accumulated during a long series of years, and at the same time stipulated for an increase in wages.

The eight-hours' shift had been the rule of the district from an early period. But the

hours of labor had been prolonged not only by the greatly increased time required for reaching the galleries, but by the exaction of work beyond the regular hours. In many other respects the managers of the mines have practiced impositions and neglected measures formerly taken for the safety and comfort of the men. While pursuing such small economies at the expense of the miners the companies were not suffering under a stress of unfavorable financial conditions, but, on the contrary, their profits have greatly increased and their shares have risen enormously in the market. This consideration impelled the men to ask for an increase of 15 or 20 per cent. in wages as well as a return to the former conditions of labor. The owners and managers of the mines were quite ignorant of the conditions under which they were worked and of the state of feeling among the miners, and were taken by surprise when the strike was declared.

The men in one of the mines of Gelsenkirchen left work on May 3. They assembled in the streets of the city on the following day, and came into collision with the police, whose orders they refused to obey. Troops were sent into the district in large numbers. Meetings at Essen, Dortmund, and Bochum proved that the strike had been long in preparation. The directors of the mines said that the men must all return to work before any attention would be paid to their complaints. At Gladbeck there was an encounter on May 7 between the military and striking miners, of whom three were killed and seven wounded. A meeting of proprietors at Bochum, on May 8, when 60,000 men were idle and coal was so scarce that Krupp began to close his iron and steel mills, decided to refuse either to advance wages or reduce working hours. Indignation meetings were held at Dortmund and Bochum at which the troops were denounced, and in the latter town the people attacked the military, and were fired upon. In Dortmund, on May 9, when non-strikers were molested at their work, the troops interfered, and after three warnings were duly given for the dispersal of the crowd with a trumpet, followed by the roll of a drum as the final signal, they fired, killing three persons and wounding several. Other collisions took place, and even women and children were among the victims. By May 10 there were 100,000 men on strike in Westphalia and Rhineland. The Cabinet were inclined to put down the strike by forcible means, and contemplated declaring a state of siege. The mine proprietors, who had an interview with the Minister of the Interior, dwelt upon the illegal action of the strikers, who were all under contract. The Emperor determined to receive a deputation of the miners and to study both sides of the dispute. On looking into the question, he was, like the general public, impressed with the justice of the strikers' demands. The delegates of the striking miners were received by the Emperor on May 14. He told them that he had ordered a thorough inquiry into the matter, and that he would work for a settlement of the dispute, but warned them that if the strike movement were to become mixed with Social-Democratic tendencies and lead to resistance of the authorities he would act with relentless severity and make them feel the full force of his power, which was very great. On

May 13 the strike began to spread into the coal mines of the Waldenberg district of Lower Silesia, where wages were lower and hours longer than in the Rhenish district. Some of the masters offered an advance of 10 per cent. and a reduction of the twelve-hours' shift to ten hours. The men, who had appointed no committee, demolished machinery and buildings at Hermsdorf until they were stopped by the soldiery, who henceforth guarded the mines. As participants in the disturbances thirty-three persons were arrested, of whom all but one were subsequently found guilty and sentenced to from one year to seven years in prison. The strike spread also into the coal field of Saar and into Saxony, where as well as in other parts of Germany strikes broke out among the masons, cab-drivers, tailors, bakers, and in other trades. The Emperor Wilhelm commissioned his old tutor, Dr. Hinzpeter, to travel through the coal districts and inquire into the causes and incidents of the strike. Eugen Richter, the parliamentary leader of the Liberals, brought about a conference between delegates of the striking miners and Dr. Hammacher, a member of the Reichstag who was president of the mine owners' association. Preliminaries of an agreement were settled, but the negotiations lagged for many days. The proprietors were willing to accord a rise in wages, but would not agree to count as working hours the time consumed in descending and returning from the mines. Two days after his interview with the miners Wilhelm gave an audience to delegates of the proprietors of the Westphalian mines. He told them that he expected them to make sacrifices to put an end to the strike. He admonished them in the future to arrange it so that the miners can always present their demands, and to keep themselves better informed concerning the condition of their workmen, saying that companies which employed a large number of his subjects are bound in duty to look after their welfare, and certainly to prevent the inhabitants of a whole province from being placed in so difficult a position.

An adjustment of the dispute between the masters and the men was finally brought about, on May 20, by Dr. Hammacher. The masters agreed to a rise in wages of from 20 to 30 per cent. and to the establishment of an eight-hours' shift, and promised that no one would be compelled against his will to work overtime. Although the strike lasted less than two weeks, the mining companies in Westphalia alone lost 25,000,000 marks in profits. A large proportion of the forges and furnaces of western Germany and Luxemburg were compelled to put out their fires after exhausting the coal supply of Holland and Belgium. In the Dortmund district the miners did not return to work till the end of the month, when the troubles in Silesia had also been composed by an increase in wages. The strikers in Germany received help and encouragement from Belgium, and in that country and in England, where the coal companies received a great accession of business through the Westphalian strike, the miners demanded an increase of pay, which they received after a brief strike in Belgium and in England by prior agreement. The Westphalian masters agreed to consider the question of an allowance for the time taken up in entering

and emerging from the mines in each special case. The laborers had their hours of work shortened in many cases, and in respect to sanitary protection, fines, disciplinary regulations, etc., obtained various ameliorations.

The Geffcken Incident.—Dr. Geffcken, a friend of the Emperor Friedrich, published extracts from a diary kept by the latter during the Franco-German War. The diary revealed the existence at that time of a rivalry between Friedrich and Bismarck, who prevented the proclamation of a centralized empire based on the popular will, with a liberal parliamentary constitution, as desired by the then Crown Prince, and induced the late Emperor Wilhelm to appeal to the princes, instead of to the German people, which resulted in the establishment of the Federal Empire as it now exists. The publication of this diary was suspected by Prince Bismarck to be intended to belittle him in the eyes of the public. On searching Dr. Geffcken's house letters were found showing that Geffcken and Baron von Roggenbach had designed presenting a memorial to the present Emperor, warning him against the concentration of the powers possessed by the Chancellor in the hands of one man. Sir Robert Morier, English Ambassador to St. Petersburg, a third friend of the late Emperor, was referred to in the correspondence, which led Prince Bismarck to suppose that he was a party to the suspected intrigue against himself. Dr. Geffcken was arrested and prosecuted before the Supreme Court of the Empire at Leipsic on the charge of high treason. The court declined to try the indictment, on the ground that no evidence was presented indicating a treasonable intent, although the published diary contained intelligence of the nature of state secrets, the publication whereof is forbidden by the criminal code. Dr. Geffcken, who was a distinguished writer on juristic and political subjects, was released on Jan. 5 from jail after four months of confinement. This decision was so unsatisfactory to Prince Bismarck that he took the extraordinary step of publishing, with the permission of the Emperor, the indictment against Dr. Geffcken and the evidence on which it was founded, thus appealing to public opinion to condemn the judgment of the highest court of the Empire. The fact was brought out that Geffcken had composed for Friedrich the proclamations, with which he began his reign, nearly three years before the death of the old Emperor. At the same time that criminal proceedings were taken against Geffcken the press organs of the Chancellor opened a campaign of slander against Sir Robert Morier. The substance of their charges was that while minister at Darmstadt, during the Franco-German War, and while enjoying the intimacy of the Crown Prince, he had abused the confidence reposed in him by forwarding to Marshal Bazaine at Metz, by way of London and Paris, information regarding the intended advance of the army of the Crown Prince across the Moselle. The accusation was based on the assertion of Major von Deines, who said that he had the statement from the lips of Marshal Bazaine. Against it were the absence of motive on the part of Sir Robert Morier, discrepancies of facts and of dates, and the denial of Marshal Bazaine, who

said that the story was a clumsy invention. Sir Robert Morier wrote to Count Herbert Bismarck asking for a public disclaimer of the charge; but the German Foreign Minister haughtily refused to comply with this "surprising demand," as he called it.

Royal Meetings.—The first of the European sovereigns to return the visit of the Emperor Wilhelm was King Umberto of Italy, who arrived in Berlin on May 23, 1889. He was received with popular enthusiasm. The Emperor showed him his troops, and intended to take him to Strasburg to review the garrison there. Prince Bismarck induced the Emperor to abandon this part of the programme, but not before the published arrangements had raised a storm in the French press. In the summer Wilhelm made a voyage to the extreme north of Norway, and before his return stopped at Copenhagen, and subsequently visited the Queen of England and his mother, the Empress Friedrich. Immediately on his return, in August, Franz Josef, the Emperor-King of Austria-Hungary, visited his ally at Berlin, and was regaled with a review of the Prussian Guards. It had been announced early in the year that the royal visits would be returned in the order in which they were given. But the Czar on whom the young Emperor had called first of all, betrayed no inclination to return the compliment until the warlike mutterings of the semi-official German press showed that the slight was deeply resented. At last, in October, he arrived, without his Foreign Minister. M. de Giers, so that no political import could be given to the visit, which was attended by purely formal and complimentary incidents; and yet, from the fact that he had an interview with Prince Bismarck, it was supposed that Germany had agreed to give Russia a free hand in Bulgaria, in spite of the susceptibilities of Austria. After the Czar's departure the Emperor Wilhelm made a voyage on board his yacht, the "Hohenzollern," in the Mediterranean, and in the early part of November visited the Sultan at Constantinople.

GREAT BRITAIN AND IRELAND, a monarchy in western Europe. The reigning sovereign is Victoria I, Queen of Great Britain and Ireland and Empress of India, born May 24, 1819. The heir-apparent is Albert Edward, Prince of Wales, born Nov. 9, 1841. The supreme legislative power is vested in the Parliament, consisting of the House of Peers and the House of Commons. The House of Peers in 1888 was composed of 5 princes of the blood royal, 2 archbishops, 24 bishops, 485 English hereditary peers, and 16 Scottish and 28 Irish representative peers. Two thirds of the hereditary peerages have been created since the beginning of the nineteenth century. There are 20 Scotch and 64 Irish peers who do not sit in the House of Lords, the representative peers being elected from the whole number of Irish peers for life as vacancies occur, while the Scotch peers elect representatives for the duration of each Parliament. The House of Commons consists of 670 members representing the boroughs, county divisions, and universities of the United Kingdom. By the reform act of 1884 household suffrage was extended to the counties of England and Scotland and to the counties and boroughs of

Ireland. Every man occupying any land or tenement of the clear annual value of £10 or more, or a separate dwelling-house by virtue of his employment, or who possesses the qualifications prescribed for the lodger franchise, is entitled to vote in the borough or county division of his residence. By the redistribution act of 1885 boroughs containing fewer than 15,000 inhabitants, of which there were 105 in the United Kingdom, were disfranchised; 39 boroughs of less than 50,000 inhabitants return one member, instead of two members as formerly; the city of London lost two of its four members; the counties of Rutland and Hereford were deprived each of one of its members; and 33 new boroughs were created, 27 of which are metropolitan. The new reform bill increased the number of electors from 3,152,910 in 1883 to 5,836,907 in 1888. Any man of full age can sit in the House of Commons, with the exception of ministers of the English and Scotch established churches, Roman Catholic clergymen, Government contractors, sheriffs and returning officers, and English and Scotch peers. Any member accepting an office under the Government forfeits his seat, but may be re-elected if the office is not a new one created since 1705. A member can not resign his seat, and when one wishes to retire from Parliament he goes through the form of being invested with the nominal office of steward of the Chiltern Hundreds. The executive power, nominally vested in the sovereign, is exercised by the Cabinet, a council of ministers who are chosen from the party having the majority in the House of Commons. The leader of the House usually becomes Prime Minister and First Lord of the Treasury, although at present the chief of the Cabinet is a peer who holds the office of Foreign Secretary. The Premier selects his colleagues, and controls the patronage of the Government. The local government act of 1888 transferred to the county councils various powers that had previously belonged to departments of the Central Government, especially the Local Government Board, the Board of Trade, the Education Department, and the Privy Council. By that act the metropolis was separated from the counties of Middlesex, Kent, and Surrey, and was constituted the administrative county of London.

The present Cabinet was constituted on Aug. 3, 1886. It is composed of the following ministers: Prime Minister and Secretary of State for Foreign Affairs, the Marquis of Salisbury; Lord High Chancellor, Lord Halsbury; Lord President of the Council, Viscount Cranbrook; Chancellor of the Exchequer, George Joachim Goschen; Secretary of State for the Home Department, Henry Matthews; Secretary of State for War, Edward Stanhope; First Lord of the Treasury, W. H. Smith; Secretary of State for the Colonies, Lord Knutsford; Secretary of State for India, Viscount Cross; First Lord of the Admiralty, Lord George Hamilton; Lord Chancellor of Ireland, Lord Ashbourne; Chief Secretary to the Lord Lieutenant of Ireland, Arthur J. Balfour; Chancellor of the Duchy of Lancaster, the Duke of Rutland; President of the Board of Trade, Sir Michael Hicks-Beach; Lord Keeper of the Privy Seal, Earl Cadogan; President of the Local Govern-

ment Board, Charles Thomas Ritchie. The Earl of Zetland succeeded the Marquis of Londonderry as Lord Lieutenant of Ireland in October, 1889.

Area and Population.—The population of the United Kingdom, the area of which is 120,832 square miles, was computed from the registration of births and deaths to be 37,453,574 in 1888, that of England and Wales being 28,628,804, of Scotland 4,034,156, of Ireland 4,790,614. The population of Ireland at the census of 1881 showed a decrease of 7.54 per cent. in ten years, yet during the same period the population of the whole United Kingdom increased 10.75 per cent. Since 1881 there has been the still more rapid decrease in the Irish population of 0.90 per cent. per annum. The Celtic-speaking population of the United Kingdom in 1881 was 2,067,359. Of these 950,000, constituting nearly three quarters of the population of Wales and Monmouthshire, speak Cymric, and nearly one third of them can not speak English; 6.20 per cent. of the population of Scotland can speak in the Gaelic or Erse tongue, nearly all being able to speak English also; and 18.20 per cent. of the population of Ireland use the Irish Gaelic language, though only 1.24 per cent. are unacquainted with English. The number of marriages registered in England and Wales in 1887 was 200,175; of births, 886,017; of deaths, 530,577. The number of marriages in Scotland in the same year was 24,851; of births, 124,375; of deaths, 74,500. In Ireland the number of marriages was 20,800; of births, 112,496; of deaths, 88,711. The proportion of illegitimate births in Ireland was 2.7 per cent., while in Scotland it was 8.3 per cent. The number of persons, native and foreign, who emigrated from the United Kingdom in 1888 was 398,747. Of these 293,099 emigrated to the United States, 49,168 to British America, 31,811 to Australasia, and 24,669 to other parts of the world. The number of English emigrants was 171,004, being 2,783 more than in 1887; the number of Scotch was 35,869, or 1,504 more; and the number of Irish emigrants was 73,195, a decrease of 5,706, making the total number of emigrants of British birth 280,068, or 1,419 fewer than in the preceding year. The population of the English cities and towns of more than 100,000 inhabitants in the middle of 1888 was as follows: London, 4,282,921; Liverpool, 599,738; Birmingham, 447,912; Manchester, 378,164; Leeds, 351,210; Sheffield, 321,711; Nottingham, 230,921; Bradford, 229,721; Bristol, 226,510; Salford, 226,336; Hull, 202,359; Newcastle-on-Tyne, 159,003; Leicester, 146,790; Portsmouth, 139,575; Oldham, 138,220; Sunderland, 131,919; Brighton, 119,983; Blackburn, 119,039; Bolton, 113,506; Cardiff, 108,570; Preston, 103,234; Birkenhead, 100,093. The population of the four largest towns of Scotland was as follows: Glasgow, 674,095; Edinburgh, 236,002; Dundee, 140,239; Aberdeen, 105,189. In Ireland, the only cities having more than 100,000 inhabitants are Dublin, with an estimated population of 353,082 in 1888, and Belfast, which had 208,122 population according to the census of 1881.

Education.—The universities and colleges of the United Kingdom had 1,096 teachers and 26,619 students in 1888. The university of Ox-

ford, consisting of 24 colleges, with 80 instructors, contained 3,534 students. In Cambridge, where there are 19 colleges, there were 117 teachers and 3,264 students. The number of students at the university of Edinburgh was 3,532; at Aberdeen, 825; at Glasgow (in 1887), 2,187; at Dublin University, 1,196. The nine great public schools of Charterhouse, Eton, Harrow, Rugby, Merchant Taylors', St. Paul's, Shrewsbury, Westminster, and Winchester have 240 instructors and about 4,000 pupils. The system of elementary education in England is of recent growth. The number of children in England and Wales attending the board schools and inspected voluntary schools in 1887 was 3,527,381; the number in Scotland, 491,735; the average attendance of the national schools of Ireland, 515,388. The amount of grants in aid in 1887 was £3,087,007 for the primary schools of England and Wales, £471,248 for those of Scotland, and £736,846 for those of Ireland. The revenue of the schools from school fees, local rates, and other sources was £3,772,622 in England, £578,972 in Scotland, and £192,317 in Ireland. The number of children of school age, that is, between the ages of 5 and 14 years, in England and Wales was 5,973,027 in 1887; in Scotland, 824,330. The number of teachers in the English primary schools was 90,628, and in the Scottish schools 12,085. Of the schools receiving Government aid in England and Wales 4,492 were under school boards; 11,838 were connected with the National Society, the organ of the Church of England; and there were 552 Wesleyan schools, 895 connected with the Roman Catholic Church, and 1,375 British, undenominational, and other schools. In Scotland, there were 2,582 public schools, 85 connected with the Church of Scotland, 155 Roman Catholic, and 307 belonging to other religious bodies or undenominational. In 1888 the number of schools inspected in Great Britain was 19,221, affording accommodation for 5,356,000 children. The pupils on the register numbered 4,687,000, and the average attendance was 3,615,000. The number of certificated teachers was 68,683; the number of pupil teachers, 29,901. The number of girls taught cookery in the schools has risen from 7,600 in 1884 to 42,159 in 1888. The average cost of maintenance per pupil calculated from the average attendance was £2 4s. 7½d. in the board schools and £1 16s. 4d. A royal commission on technical education, and, more recently, an education commission have investigated the subject of reforming the schools, and each recommended important changes, but their recommendations have not yet been carried into effect. The suggestions contained in the report of the education commission were embodied in a code that was introduced in Parliament by the vice-president of the board of education, Sir William Hart-Dyke; but owing to the objections of other members of the Tory party, who conceived that it would impose new financial burdens on the voluntary schools, it was withdrawn. As a matter of fact, many of the voluntary schools are supported almost entirely from school fees and Government grants. The system of payment by results was condemned by the commission because it leads to overpressure and to mechanical teaching by rote, which is of little educational

value. There is a movement in England in favor of free schools, and in Scotland a beginning has been made by abolishing the school fees for the lower standards. The fees collected from parents represent more than 25 per cent. of the total cost of maintaining the schools. The income derived from school fees in England in 1888 was £1,862,000, and it is increasing every year. To the 40s. which was the average cost of each pupil in 1888 the Government contributed 17s. 8d., while 11s. 2d. were raised by local rates and subscriptions and 11s. 2d. were collected from the parents. The denominational schools educate 62 per cent. of the scholars in average attendance in England and Wales, and constitute 77 per cent. of the total number of schools, while in Scotland only 17 per cent. of the schools are voluntary.

Finances.—The total receipts of the Exchequer for the year ending March 31, 1889, were £88,473,000, or £1,646,000 in excess of the budget estimates, while the expenditure amounted to £85,673,000, which is £941,000 less than the estimates. The receipts from customs were £20,067,000; from excise, £25,600,000; from stamps, £12,270,000; the land tax, £1,020,000; the house duty, £1,940,000; and the property and income tax, £12,700,000, making the total produce of taxes £73,597,000, or £1,201,000 more than the estimate. The post-office produced £9,100,000; the telegraph service, £2,080,000; crown lands, £430,000; interest on advances, £244,000; and miscellaneous sources, £3,025,000, making the total revenue from sources other than taxation £14,876,000. The customs receipts show an increase in the items of dried currants, tobacco, cocoa, and tea. The increase in tobacco and in tea was less than was estimated, owing partly to expected reductions in the tariff and partly to the increased use of more slowly burning sorts of tobacco and of the Indian and Ceylon teas, which are stronger than the Chinese varieties. The consumption of coffee does not increase, which is attributed to the fact that cocoa and, to a less extent, tea are brought more extensively to the notice of the people by means of advertising. The wine duties yielded £1,210,000, as against £1,085,000 in 1888, the entire increase being due to the extra duty on sparkling wines. The consumption of heavy wines has sunk from 11,000,000 gallons in 1876 to 5,000,000 gallons in 1889, while that of the lighter wines has risen from 6,000,000 to 8,000,000 gallons. The imports of rum and brandy were less in 1889 than in the preceding year, while in German plain spirits there was an increase, but not enough to make good the decline in British spirits. The revenue from beer was £8,771,000, being £60,000 more than in 1888. The total internal and customs revenue from spirituous beverages, excluding sparkling wines, was £26,985,000, a decrease of £63,000 as compared with the preceding year. The probate duties amounted to £4,225,000. One third of the receipts from this source were given up to the Local Government Board in 1889 for the relief of local taxation, and in 1890 one half of these duties are relinquished to the local authorities and county councils. The greater part of the license duties have been transferred in the same manner. The legacy and succession duties yielded £3,737,000. The expenditure in

1889 on the charges of the consolidated fund amounted to £27,854,580; on the army, £15,950,000; on the navy, £12,999,895; on the civil service, £17,872,986; on customs, £926,889; on the inland revenue service, £1,791,333; on the post-office, £5,667,849; on the telegraph service, £1,965,000; on the packet service, £637,502. The budget surplus of £2,798,000 was greater than in any year since 1874, but it was wiped out by the extraordinary votes for naval and military purposes, and for the following year Mr. Goschen was compelled to resort to new taxation to avoid a deficit. The budget estimates for 1889-'90 had to meet a loss of £1,500,000 additional that was given up for the relief of local taxation, and at the same time to provide £1,500,000 for extraordinary naval expenditures and an increase of £1,250,000 in the ordinary army and navy estimates. The expenditure was estimated at £86,967,000, while the revenue, on the basis of existing taxation, was estimated at £85,050,000. Instead of raising the income tax, which was 6*d.* on the pound, the Chancellor of the Exchequer decided to meet the deficiency by applying £1,000,000 of the £1,500,000 gained by the conversion of the debt to the naval defense fund, by imposing an extra succession duty of 1 per cent. on all estates of more than £10,000 in value, which was expected to bring in £800,000 more, and by an augmentation of the beer duty estimated to produce £300,000, which will make the total income £87,150,000.

Mr. Goschen, in reviewing the three budgets that he had presented summarized the changes that he had introduced. He had diminished the sinking fund by £1,500,000, increased the death duties by 1 per cent., imposed the tax on sparkling wines, and added to the stamp duties, while on the other side of the account he could take credit for having diminished the income tax by £4,000,000, relieved local taxation by £2,500,000, added £2,000,000 to the national defense expenditure, converted £530,000,000 of consols, by which nearly £1,500,000 in interest had been saved at once and a further annual saving of £1,500,000 would be effected eventually, and he had paid off more debt than any of his predecessors, reducing the capital to £698,000,000, which was lower than it had stood at any time within eighty years.

The Army.—The number of troops to be maintained each year must receive the authorization of Parliament, which is given by the adoption of the annual army estimates. The strength of the regular army for the year ending March 31, 1889, was fixed at 149,667 men of all ranks, exclusive of the forces in India. The number of horses for the home establishment in 1888 was 13,000, and of field guns 264. The European army in India in 1889 numbered 73,666 men of all ranks, with 10,995 horses and 318 guns. The regular forces at home and in Egypt and the colonies were reported early in the year at 138,575, the first class of the army reserve at 50,555, the second class at 4,100, the militia at 121,443, the yeomanry at 11,424, and the volunteers at 228,038 men, making a total effective force of 554,135 men, or, including the Indian establishment, 627,801 men. The cost of the effective services in 1888-'89 was set down at £13,672,700 in the army budget, in which the total cost of the

British army, including pensions and retired officers' pay, was estimated at £19,458,205.

The magazine rifle that has been adopted for the British infantry has a weight, with the magazine filled with 8 cartridges, of about 10½ pounds, while the new sword bayonet weighs nearly a pound.

The Navy.—The cost of the naval establishment, as calculated in the estimates for 1888-'89, was £13,082,800, of which £11,118,900 was for effective services and £1,963,900 for pensions and retired pay. The number of seamen and marines provided for, including officers, was 62,400. There were 13 flag officers and 2,581 commissioned officers in active service. The number of steam vessels in commission at the end of 1887 was 182. The navy list for January, 1889, gave the names of 400 vessels of all classes in commission, besides 105 engaged in harbor service. In addition to these there are 23 steamers of the Cunard, White Star, and Peninsular and Oriental lines that are retained by the Government as reserved merchant cruisers. In April, 1888, there were 42 battle ships, of which 8 were in need of repairs, and 7 new ones not yet completed; 6 armored cruisers completed and 6 building; 43 unarmored cruisers completed and 22 not yet built or ready; 13 completed vessels for coast defense; 1 torpedo ram; 2 torpedo vessels completed and 12 not yet finished; 1 torpedo store-ship and another one building as a fast cruiser; 80 first-class torpedo boats and 6 more ordered; 51 second-class torpedo boats and 10 more to be built; and 12 wooden torpedo boats not yet completed. According to the navy estimates for 1888-'89, the effective navy consists of 258 vessels, comprising 193 steamships, including 29 armored vessels and 31 corvettes, 31 sailing vessels, and 35 stationary ships. The sum appropriated for new constructions was over £3,800,000. The vessels building in that year consisted of 11 armored ships, 15 cruisers, 29 unprotected vessels, and 16 torpedo boats.

The new torpedo vessel, the "Vulcan," was launched at Portsmouth on June 13, 1889. She is a steel-protected cruiser of 6,620 tons displacement, with engines of 12,000 horse-power, capable of a speed of from 18 to 20 knots. Her coal capacity is sufficient for a cruise of 12,000 miles. The strong deck plates are carried below the water line, and a double bottom and watertight compartments extend the whole length of the hull. Armed with 8 powerful 4.7-inch guns, 12 quick-firing guns, and machine guns on the upper deck, and provided with tubes for discharging white-lead torpedoes both above and under water, and a formidable ram, she is capable of fighting, but her special province is to serve as a base of operations for a torpedo-boat flotilla. She will carry 9 second-class torpedo boats, and has cranes and machinery for lifting and lowering them in any weather, four electric search lights, a workshop for repairing torpedo boats and torpedoes, and all the apparatus necessary for carrying on submarine mining operations on a large scale. The estimate of total cost of the ship and her outfit is £292,000.

The "Sultan," a second-class battle-ship attached to the Mediterranean squadron, of 9,270 tons and engines of 7,720 horse-power, armed with 19 guns, and manned with 600 men, went

ashore on the rocks in the Bay of Biscay on March 7, 1889, and was abandoned by her crew. She was afterward forced off the rock by a gale, and sank in deep water. The naval authorities were unable to raise her, and it was only accomplished several months afterward by a salvage company.

The Northbrook programme of naval construction adopted in 1885 was nearly completed in 1889, though several of the ships still awaited their armaments, particularly the 111-ton and 67-ton guns. There is great doubt whether the guns that have been accepted are capable of performing what is expected of them, for there have been several failures. Both the 111-ton guns on the "Victoria" collapsed after a few rounds, and many large guns have recently been rejected on trial. A new ship-building scheme of great magnitude was the outcome of the demands that have been urged by naval officers for a year or two past. In 1888 the Government declined to undertake so great an expenditure of money, but the agitation grew into a naval scare, and compelled the ministers to recant all their declarations as to the sufficiency of the navy, and satisfy the country with a programme of construction that would fulfill, or seem to fulfill, the old criterion which requires England to keep up a navy equal to those of any two other European nations combined, modified now so as to except those of Germany and France. The ship-building programme sanctioned by Parliament in 1889 is to consist of 70 ships, the whole to be completed in four and a half years from the date of the beginning of the first vessel, at a total estimated cost of £21,500,000, including armaments. Of the new vessels 8 are to be first-class battle ships, with a displacement of 14,000 tons apiece, or 2,060 tons more than the "Nile" and the "Trafalgar," which are the largest ships now in the British navy. They will resemble those vessels in the disposition of the armor, and will have a high freeboard, great coal capacity, and a speed of at least $17\frac{1}{2}$ knots. Each will carry four 67-ton guns of $13\frac{1}{2}$ inches caliber. Next to these in size and strength will be 2 second-class battle ships, with a displacement of 9,000 tons. There are to be 9 first-class cruisers of the "Mersey" type, but with a much larger displacement—7,300 tons. Of smaller cruisers there will be 29 of the "Medea" class, with 35 feet greater length and a displacement of 3,400 tons, and four still smaller of the "Pandora" class, of 2,600 tons displacement. The 18 vessels completing the list will be torpedo gunboats, of 735 tons displacement, built on the model of the "Sharpshooter," but larger and fleetier. The first-class cruisers, as well as those of the "Medea" type, must show a speed of 20 knots. Not quite half of the list, viz., 4 battle ships, 6 first-class and 17 second-class cruisers, and 6 torpedo gunboats, are to be built by contract, at an approximate cost of £10,000,000, and the remainder in the dock-yards of the Government, where 4 battle ships of the first class, 1 of the second class, 3 first-class cruisers, 6 second-class cruisers, and 6 torpedo gunboats were to be begun before the end of the year. The contracts were all to be given out at once, unless shipbuilders combined to raise prices. The new ships will require 269 guns, of which all but 48 of the largest are ex-

pected to be completed in two years. Instead of raising the £10,000,000 for the contracts by a loan, the Government proposed that a large part of the cost of the new vessels, besides what can be defrayed from the normal sum of £4,500,000 that is appropriated annually for ship-building, the maintenance of dockyards, etc., should be made a charge on the consolidated fund distributed over seven years, on each of which will fall the sum of £1,730,000, while the remainder is to be provided by adding £615,000 annually to the naval estimates for four years. The Liberals raised futile protests against an arrangement whereby, if they should come into power, they would have to raise £1,250,000 per annum by taxation for four years after the money had been spent.

The first of the monster ironclads to be laid down, the "Royal Sovereign," was begun at Portsmouth on Sept. 30. She will have a length of 380 feet and an extreme breadth of 75 feet. The four heavy guns will be placed in two movable barbette turrets, between which the smaller guns are to be mounted in a long central battery. The 18-inch belt at the water line will extend two thirds of her length, while armored bulkheads protect the ends from a raking fire. The minor armament will consist of quick-firers comprising ten 6-inch 5-ton guns throwing 100-pound projectiles, sixteen 16-pounders, and eight 3-pounders, together with seven torpedo tubes, of which two are submerged. The armor on the barbettes will be 17 inches thick, while the protection of the auxiliary armament and the ammunition chambers has been designed to meet the dangers from high explosives and rapid-firing guns. From the top of the belt to a height of about 11 feet above the water there is vertical armor corresponding to the citadel in the older type of turret ships. The 3-inch steel deck meets the armor belt, which is $8\frac{1}{2}$ feet broad. The "Royal Sovereign" is to be completed in December, 1893.

Commerce.—The movement of foreign commerce for the five years ending with 1888 is exhibited in the following table:

YEARS.	Total imports.	Exports of British produce.	Exports of foreign and colonial produce.
1884.....	£390,018,569	£238,025,242	£62,942,841
1885.....	370,967,955	218,044,500	57,359,194
1886.....	349,863,472	212,432,754	56,234,268
1887.....	362,227,564	221,414,186	59,348,975
1888.....	336,582,026	233,733,937	64,618,447

The value per capita of the foreign commerce was £18 5s. 7d. in 1888, as compared with £17 6s. 7d. in 1887, £16 16s. 8d. in 1886, £17 13s. 7d. in 1885, and £19 1s. 6d. in 1884, while in the five years 1879-'83 it averaged £19 13s. 11d. The imports of gold coin and bullion in 1888 amounted to £15,790,258, against £9,955,326 in 1887; the exports were £14,944,143, against £9,323,614; the imports of silver bullion and specie were £6,213,940, against £7,819,438; the exports were £7,615,428, against £7,807,404.

The participation of the principal foreign countries in the foreign trade is shown in the following table, giving the value of the imports from each of them in 1887 and the value of the exports of British produce to each:

COUNTRIES.	Imports.	Exports of British produce.
United States.....	£288,049,074	£29,547,800
France.....	37,122,188	18,659,434
Germany.....	24,563,536	15,617,212
Netherlands.....	25,327,277	8,186,212
Belgium.....	14,732,663	6,830,520
Russia.....	15,974,289	4,166,964
Spain.....	10,102,225	3,332,707
China.....	6,667,043	6,243,002
Brazil.....	5,379,073	5,824,408
Italy.....	3,072,704	7,794,177
Egypt.....	7,689,177	3,008,948
Sweden.....	7,322,216	2,094,687
Turkey.....	3,736,987	5,684,341
Argentine Republic.....	2,176,758	6,229,666
Denmark.....	5,197,758	1,845,390
Portugal.....	2,826,771	2,142,361
Roumania.....	3,400,504	1,088,429
Chili.....	2,203,353	1,980,978
Japan.....	489,918	3,584,619
Norway.....	2,784,738	1,137,460
Java.....	2,264,053	1,387,000
Greece.....	1,883,400	959,217
West Africa.....	1,266,346	1,333,181
Austria.....	1,586,172	875,065
Peru.....	1,640,176	717,121
Central America.....	1,341,176	967,513
Uruguay.....	283,307	1,750,012
Spanish West Indies.....	203,914	1,458,422
Mexico.....	474,023	1,106,609
Philippine Islands.....	873,658	673,069
Colombia.....	266,002	1,165,832
Venezuela.....	117,581	779,717
Algeria.....	575,955	293,253
Morocco.....	393,730	344,907
Ecuador.....	219,062	378,633
Hayti.....	44,644	494,529
Tunis and Tripoli.....	329,956	84,208
East Africa.....	96,702	292,619
Persia.....	103,420	149,865
Bolivia.....	145,947	84,615
All other countries.....	474,423	1,118,635
Total foreign countries.....	£278,423,899	£146,273,337

The following table gives the shares of the principal British colonies and dependencies in the foreign trade of 1887:

BRITISH POSSESSIONS.	Imports.	Exports of British produce.
India.....	£30,529,310	£30,583,209
Australasia.....	23,344,846	19,736,530
British North America.....	10,564,727	8,094,216
South Africa.....	5,084,906	4,989,741
Straits Settlements.....	4,781,704	2,477,143
Hong-Kong.....	1,409,241	2,546,535
British West Indies.....	1,734,380	1,982,655
Ceylon.....	2,257,823	622,707
British Guiana.....	1,295,252	679,424
Channel Islands.....	974,120	575,001
West Africa.....	764,710	418,073
Malta.....	118,469	738,868
Mauritius.....	165,032	284,970
All other possessions.....	774,095	1,406,727
Total British possessions.....	£33,793,665	£74,135,849

The total value of imports in 1888 was 6·8 per cent. more than in 1887, and the exports show an increase of 5·5 per cent. in value. The increase in imports was mainly under the head of food stuffs, the imports of which amounted in 1888 to nearly £150,000,000, not including live animals, while the exports were about £10,000,000. While there was a decline in the imports of iron, in other metals and in raw materials for the industries there was a considerable increase. In textile materials the increase was comparatively greatest in hemp, flax, and silk, while cotton fell off slightly. Manufactures show an advance in the total amount, the largest increase having taken place under the items of glass, iron wares, pre-

pared skins, paper, ribbons, and woolen fabrics. The articles of export that show the greatest improvement are coal, iron and manufactures of iron, and machinery. In the exports of textile manufactures there was a very small increase. In cotton yarns and cloths, jute manufactures, woolen yarns, and linen and silk fabrics there was a larger export, while linen and silk yarns and woolen fabrics declined. Other articles showing a noticeable augmentation in the value of their exports are paper, colors, oils, earthenware, bagging, shoes, hats, tools, refined sugar, domestic wool, spirits, and beer.

The values of the imports of the main classes of commodities in 1888 were as follow:

CLASSES OF IMPORTS.	Values.
Live animals.....	£7,727,307
Food articles, free.....	124,281,097
Food articles, dutiable.....	24,953,798
Tobacco.....	2,821,318
Metals.....	23,242,958
Chemicals and dyes.....	8,114,439
Oils.....	6,432,871
Textile materials.....	30,463,675
Other raw materials.....	36,722,501
Manufactured articles.....	57,793,604
Miscellaneous.....	14,018,458

Total..... £386,582,026

The imports of grain and flour in 1888 were 144,937,008 hundred-weight, against 139,183,655 hundred-weight in 1887, and 126,061,268 hundred-weight in 1886. There were 2,384,144 hundred-weight of potatoes imported; 6,203,827 hundred-weight of rice; 6,889,848 hundred-weight of refined, and 17,850,371 hundred-weight of raw sugar; 2,807,488 hundred-weight of butter and margarine; 1,917,541 hundred-weight of cheese, against 1,834,467 hundred-weight in 1887 and 1,734,890 hundred-weight in 1886; 3,582,841 hundred-weight of bacon and hams, against 3,921,428 hundred-weight in 1887, and 4,210,829 hundred-weight in 1886; 823,103 hundred-weight of cured and salted fish; 1,063,980 hundred-weight of beef, against 875,991 hundred-weight in 1887 and 997,590 hundred-weight in 1886; 542,599 hundred-weight of preserved meat, against 519,180 hundred-weight in 1887 and 431,992 hundred-weight in 1886; 989,484 hundred-weight of fresh mutton; 956,210 sheep and lambs; and 377,088 head of cattle for food. Of the imports of wheat in 1888 British possessions supplied 2,318,693 quarters and other countries 9,126,253 quarters. The chief sources were Russia, which furnished 4,273,760 quarters; United States, 2,929,440 quarters, besides 12,557,100 hundred-weight of wheat flour; India, 1,637,740 quarters; Germany, 652,960 quarters; Australasia, 463,140 quarters; Chili, 297,140 quarters; Canada, 217,816 quarters. Cereals are the largest article of import in value, amounting to £50,675,221 in 1888. Raw cotton comes next, its value in 1888 being £39,400,676; then wool, of the value of £25,897,745. The other chief articles, in the order of their values, in 1888 were: Metals, valued at £23,242,598; sugar, £18,150,843; timber, £14,645,330; butter, £12,166,020; silk manufactures £10,456,955; tea, £10,216,100; flax, hemp, and jute, £9,701,594; meat, £8,366,985; chemicals, £8,114,439; live animals, £7,727,307; chemicals, £7,578,804; oils, £6,432,871; fruits, £6,146,483; leather, £5,901,195; wine, £5,386,367; cheese, £4,542,278; coffee, £3,585,213; eggs, £3,077,109; tobacco, £2,821,318.

The values of the main classes of British products exported in 1888 are given in the following table:

CLASSES OF EXPORTS.	Values.
Live animals	£1,043,807
Articles of food and drink	10,242,543
Raw materials	13,972,913
Textile manufactures	108,863,731
Metals and metal goods	37,071,346
Machinery	12,932,625
Apparel, etc.	11,188,914
Chemicals and drugs	7,444,350
Other manufactures	30,970,708
Total British produce	£233,733,937

The export of cotton fabrics, etc., was £52,581,458, and of cotton yarn, £11,655,688, making the total value of cotton manufactures £64,237,146 in 1888, against £70,956,769 in 1887, and £68,854,624 in 1886. Of woollen manufactures there were exported cloths and coatings of the value of £8,298,454; worsted stuffs, £7,712,111; carpets and druggets, \$1,228,949; other fabrics, £2,732,244; and yarns £4,051,656, making a total of £24,023,414, against £24,138,407 in 1887, and £24,710,122 in 1886. The export of linen manufactures was £5,553,416; of linen yarn, £886,918; of jute manufactures, £2,080,783; of apparel and haberdashery, £11,188,914. The exports of iron and steel manufactures other than machinery and mill work amounted to £26,372,755, against, £25,000,356 in 1887, and £21,817,720 in 1886. The export of pig and puddled iron was £2,207,176; of bars, angles, bolts, and rods, £1,660,273; of railroad iron, £4,673,148; of wire, £863,218; of tinned plates, £5,538,310; of hoops and plates, £4,049,819; of wrought iron, £4,880,561; of old iron, £396,857; of steel and manufactures thereof, £2,103,393. The export of machinery was £1,787,120 more than in 1887, and £2,795,793 more than in 1886. The exports of coal and coke were £11,340,832 in 1888, against £10,164,991 in 1887, and £9,837,338 in 1886.

Navigation.—The aggregate tonnage of vessels employed in foreign commerce entered and cleared at the ports of the United Kingdom during 1887 was 65,161,774, compared with 62,841,077 in 1886, 64,281,642 in 1885, 64,272,522 in 1884, and 64,961,753 in 1883. Of the total tonnage 17,211,837 tons were foreign, of which 3,893,231 were Norwegian, 3,550,159 German, 1,756,003 French, 1,458,362 Danish, 1,795,665 Dutch, 1,442,064 Swedish, 940,613 Spanish, 663,847 Belgian, 569,716 Italian, 492,151 Russian, and 292,055 American. The tonnage entered and cleared at the principal ports, exclusive of coasting vessels, was in 1887 as follows: London, 12,164,336; Liverpool, 9,944,918; Cardiff, 7,250,376; Newcastle, 4,395,402; Hull, 3,351,534; Glasgow, 2,436,358. The tonnage of vessels entered and cleared coastwise in 1886 was 81,426,037.

The number of vessels engaged in both the foreign and the coasting trade in 1887 was 17,723, of 7,123,754 tons, employing 202,543 men, of whom 24,046 were foreigners. The total tonnage of all vessels belonging to Great Britain and her colonies in 1887 was 9,135,512. The steam vessels employed in the foreign trade in 1887 numbered 3,063, of 3,601,164 tons; sailing vessels in the foreign trade, 2,717, of 2,429,699 tons; steam vessels employed partly in the home and partly in the foreign trade, 226, of 103,622 tons; sailing vessels employed partly in the home and

partly in the foreign trade, 405, of 51,129 tons; steam vessels employed in the home trade, signifying the coasts of the United Kingdom and ports between Brest and the mouth of the Elbe, 1,740, of 304,538 tons; sailing vessels in the home trade, 9,572, of 633,602 tons.

The number of vessels registered in the United Kingdom was 22,136, of 7,335,182 tons, at the end of 1887, comprising 6,663 steam vessels, of 4,085,275 tons, and 15,473 sailing vessels, of 3,249,907 tons. The total tonnage was 26,636 tons less than in 1886. In ten years the number of sailing vessels had declined 5,585, and the tonnage 988,785, while there was an increase of 1,837 in the number of steamers and of 1,768,803 tons in the tonnage. The number of sailing vessels built and first registered in 1887 was 258, of 81,279 tons, and of steam vessels 322, of 225,440 tons, making altogether 580 new vessels, of 306,719 tons, as compared with 671 vessels, of 293,000 tons, built in 1886, 1,852, vessels, of 405,386 tons, built in 1885, and 1,001 vessels, of 497,442 tons, built in 1884.

The total tonnage of vessels belonging to the British Empire in 1887 was 9,135,512. A new line of mail steamers will be established in connection with the Canadian Pacific Railroad. The British treasury has agreed to pay to the railroad company an annual subsidy of £45,000, and the Canadian Government to supplement it with £15,000 more, for maintaining a line of steamers affording a monthly mail service between Vancouver and the ports of Yokohama, Shanghai, and Hong-Kong. The new service is to begin in January, 1891. The steamers are to possess a high rate of speed, and to be constructed with gun platforms and other fittings specified by the Admiralty, so as to be capable of employment as armed cruisers in case of war, and are required at all times to carry troops and naval and military stores at actual cost. The average period of transit stipulated for between Halifax and Hong-Kong is twenty-nine days and a half. The time is expected in the actual performance not to exceed thirty days and a half from England, or the same that is made by the Peninsular and Oriental Company, to which the British Government pays a subsidy of £365,000 per annum for a weekly mail service to India and China by way of Brindisi and the Suez Canal. If this calculation is borne out by results, the Canadian Pacific route will be sixteen days shorter to Japan and five or six days shorter to Shanghai than the average passage by the Suez Canal.

Industry.—The quantity of coal mined in the United Kingdom during 1887 was 162,119,812 tons, valued at £39,092,830; the quantity of iron ore, 13,098,041 tons, containing 4,708,994 tons of iron, of the estimated value of £11,000,000; lead ore, 51,563 tons, containing £486,886 worth of metal; tin ore, 14,189 tons, containing 9,282 tons of metal, of the value of £1,048,633, and silver of the value of £59,774; the quantity of copper extracted from British ore was 889 tons, valued at £42,850; of zinc, 13,042 tons, valued at £209,596. The total value of non-metallic minerals mined was £50,645,481. The export of coal in 1887 was 24,460,967 tons. The number of persons employed in coal mining was 526,277. The total consumption of iron ore in 1887, including imports, was 17,255,015 tons.

The imports were 3,765,788 tons, of which 3,597,202 tons came from Spain. There were 406 furnaces in blast, producing 7,559,518 tons of pig iron, of which 1,126,447 tons were exported. There were 2,064,403 tons of Bessemer steel ingots, 981,104 of open-hearth steel, and 1,701,312 of puddled bar iron produced during 1887.

The total imports of raw cotton in 1887 were 1,791,437,312 pounds, of which 1,498,822,304 pounds were retained for home consumption. The wool imports were 577,924,661 pounds and the exports 319,202,968 pounds. The consumption of cotton doubled between 1850 and 1860, but since then has not greatly increased. Between 1879 and 1885 there was a decrease of 58,715 in the whole number of persons employed in the textile industries, and of 13,704 in the number of spindles, while the number of power looms was increased by 48,000.

Agriculture.—The total area of the United Kingdom is 77,799,793 acres, of which 47,876,814 acres are cultivable, while 2,790,406 acres are under forests, and 27,132,573 acres are waste land and water. Of the cultivable area 9,785,697 acres were devoted in 1888 to grain crops, 4,729,191 acres to green crops, 5,979,351 acres to clover and grass, 26,698,229 acres to permanent pasture, 115,795 acres to flax, 58,494 acres to hops, 36,941 acres to small fruits, and 473,116 acres were fallow. The wheat acreage in Great Britain was 2,564,010, compared with 2,317,362 acres in 1887, and 2,285,905 in 1886. The wheat crop of 1888 was estimated at 71,939,647 bushels, or 28·05 bushels to the acre, compared with 32·07 bushels in 1887. There were 2,085,474 acres given up to barley in 1888, producing 68,482,089 bushels, or 32·84 bushels to the acre. The acreage of oats was 2,882,233; of potatoes, 590,123 acres. In Ireland 1,280,503 acres were under oats in 1888, 804,508 acres under potatoes, 294,293 acres under turnips, 170,813 acres under barley, and 113,586 acres under flax. The number of horses in the United Kingdom in 1888 was 1,936,702; cattle, 10,268,600; sheep, 28,938,716; swine, 3,815,643. Of the horses 1,091,500 were in England, 139,063 in Wales, 189,787 in Scotland, and 507,201 in Ireland. Of the cattle England had 4,352,826, Wales 666,259, Scotland 1,110,290, and Ireland 4,099,241.

Fisheries.—There were 125,764 men, with 32,189 boats employed in the sea fisheries in 1888. About 52,000 of the fishermen were Scotch and 47,000 English. The quantity of fish landed on British coasts was about 1,200,000,000 pounds. The value of the fish landed on the English coast was £4,103,000; on the Scotch coast, £1,678,000; on the Irish coast, £609,000.

Railroads.—There were 13,825 miles of railroads open for traffic in England and Wales on Jan. 1, 1888, 3,079 miles in Scotland, and 2,674 miles in Ireland, making the total mileage of the United Kingdom 19,578. The total amount of paid-up capital was £845,971,654. The receipts for 1877 were £70,943,376, of which £30,573,287 were from passengers. The total number of passengers, exclusive of holders of season tickets, was 733,678,531. Of the total capital £702,554,403 was invested in English, £106,959,962 in Scotch, and £36,457,289 in Irish railroads. The railroads of the British colonies and dependencies in 1888 had an aggregate length of

38,824 miles, making the total mileage of the British Empire 58,402. For many years the public has called for legislation compelling all the railroads to adopt the American system of automatic brakes and electric signals for the safety of passengers. The companies have averted interference with the plea that these safety appliances were still in an experimental stage, and that they were studying to find a perfect system, and stilled the outcry until some new accident caused a renewal of the demand. Most of the important and prosperous railroads have for some time been fitted with these improvements, which the Board of Trade as early as 1877 declared to be necessary for all. The smaller lines have not adopted them, on account of their cost. While Parliament was in session in 1889 a catastrophe occurred at Armagh, Ireland, whereby seventy-eight lives were sacrificed and two hundred and sixty persons were injured. On the report of the Board of Trade that the accident would not have happened if the train had been fitted with a continuous automatic brake, Parliament passed a law in accordance with which every company must adopt the block system, provide a system of interlocking of points and signals on all their lines, and use continuous brakes on all their trains.

Posts and Telegraphs.—There were 1,512,000,000 letters forwarded in 1888, of which 1,287,000,000 were delivered in England, 132,000,000 in Scotland, and 93,000,000 in Ireland. This made an average of 45 letters per head of population in England, 33 in Scotland, and 19 in Ireland, or for the entire Kingdom 40 letters per capita. The number of post-cards sent was 159,000,000 in England and Wales, 21,000,000 in Scotland, and 9,000,000 in Ireland; total, 189,000,000, an increase of 4·8 per cent. over the preceding year. Of book-packets there were forwarded 332,000,000 in England, 39,000,000 in Scotland, and 19,000,000 in Ireland, or 390,000,000 for the United Kingdom, an increase of 5·6 per cent. The number of newspapers was 120,000,000 in England, 17,000,000 in Scotland, and 16,000,000 in Ireland, or altogether 152,000,000, an increase of 8 per cent. The number of parcels was 30,000,000 in England, 4,000,000 in Scotland, and 3,000,000 in Ireland, or 37,000,000 in all, an increase of 11·8 per cent. The number of postal orders sent through the British post-office has gradually declined from 18,368,901 in 1878 to 9,552,777 in 1888, and the total amount from £27,870,117 to £22,881,676. There were 8,720 post-office savings-banks in the beginning of 1888, with 6,916,327 accounts. The deposits made during 1887 amounted to £16,535,932, and the total amount standing to the credit of depositors on Jan. 1, 1888, was £53,974,065, as compared with £47,697,838 in 1885.

The telegraphs have been owned by the state since 1870. There were 30,430 miles of lines, with 180,000 miles of wire, on April 1, 1888. The receipts in 1888 were £1,959,406, and the expenses £1,928,159. The number of messages in 1888 was 53,403,425, of which 44,925,270 were forwarded from stations in England and Wales, 5,430,624 in Scotland, and 3,047,531 in Ireland. The number of telegraph offices in 1888 was 6,810. The gross revenue of the post-office and telegraphs in the year ending March 31, 1888,

was £11,064,745, and the expenditure £8,213,405, leaving a net revenue of £2,851,340.

The Parliamentary Session.—The session of 1889 was less disturbed by struggles over contentious measures than any preceding one since the Irish crisis began. The session—the fourth one of the present Parliament—was opened by royal commission on Feb. 21. The speech from the throne placed at the head of the list of Government measures the naval defense bill, saying that the unceasing expenditure on warlike preparations by other European nations had rendered necessary increased precautions for the safety of British shores and commerce. Several bills that had been abandoned in the preceding session were revived in the programme, such as the tithes bill; a bill for the regulation of Scotch universities; a bill for defining the liability of employers in case of accidents; a bill for establishing a department of agriculture; a bill for cheapening the transfer of land; and one for remedying the abuses of limited liability companies. Among the new measures promised, the first place was given to a Scotch local government bill and legislation supplementary to the bill that had been passed on the subject for England and Wales. Next came measures for developing the material resources of Ireland and for amending the constitution of the land courts. Bills for carrying into effect the convention for the abolition of sugar bounties, for calling in the light gold coinage, for completing the conversion of the 3-per-cent. annuities, and for carrying out the recommendations of the royal commission on the civil service were also mentioned.

Irish evictions, arrests of members of Parliament and their harsh treatment in prison, and the general policy of severe coercion that had been resumed by the Government, together with the Pigott incident and revelations of the collusive activity of officials in preparing the case for the "Times" newspaper before the special commission gave the Opposition many opportunities for attacking the Government during the debate on supply and the discussion of the supplementary estimates. Mr. Morley and Sir William Harcourt led in these assaults. Mr. Morley's amendment to the address, declaring that the administration in Ireland is viewed with reprobation and aversion by the British people, was defeated on March 1 by 339 votes to 260.

The naval defense bill was presented by Lord George Hamilton after the House had agreed to a resolution authorizing the expenditure of £21,500,000 on the navy, of which £10,000,000 are to be provided from the consolidated fund during the ensuing seven years and £11,500,000 to be provided from the naval estimates during the ensuing five years. These amounts correspond respectively to the work to be given out to contractors and that which will be executed in the Government dockyards. Radical opponents of war and imperial expansion attacked the measure itself. Mr. Cremer's amendment, condemning it as inexpedient and advocating universal disarmament, was defeated by a vote of 256 against 85. Lord Charles Beresford objected, on the other hand, on the ground that the ministerial programme of naval construction was insufficient. While Mr. Labouchere and his

Radical followers condemned naval expansion. Mr. Childers, supported by Mr. Gladstone, offered a serious opposition to the proposal to pledge Parliament to expenditures covering a series of years. Lord Randolph Churchill joined in the financial criticisms, and Mr. Goschen was accused of having abandoned the principles of Liberal finance and given his assent to a dangerous precedent. An amendment in favor of meeting the cost of the contracts by means of annual votes, instead of by a specially assigned capital fund, was supported by the entire Gladstonian party. The Liberals were restrained by the popularity of the measure from offering resistance or obstruction. The controversy over the financial proposals was revived in committee, but the bill passed through the remaining stages without serious difficulties, was sent up to the House of Lords on May 20, and received the royal assent before the end of the month. Lord Charles Beresford, who a year before had resigned his post in the Admiralty and engaged in the agitation for the increase of the navy, which the Government then declared to be entirely unnecessary, now gave up his seat in Parliament, satisfied with the effect of the popular clamor that he had excited, and applied for an assignment to the command of a vessel. Mr. Goschen obtained the authorization of Parliament for the completion of his conversion scheme, and raised the amount required for paying off in July the holders of consols and reduced 3-per-cents. who had not by that time accepted the terms offered by the Government. The amount that the Government had thus to redeem was a little more than £12,000,000, for which Exchequer bonds and treasury bills were issued. The budget proposals gave the Liberals another opportunity to impeach Mr. Goschen's orthodoxy; especially the restriction of the new death duty to estates above a certain magnitude was criticised as equivalent to sanctioning graduated taxation, and its extension to personal property was denounced as an inequitable burden on personality. These charges were repelled by a majority of 257 against 181 votes, and an amendment of Mr. Picton proposing the repeal of the tea duty was rejected by a still larger majority. The bill for giving effect to the sugar bounties convention of Aug. 30, 1888, was introduced by Baron H. de Worms, who had with persistence and energy brought the sugar conference to a successful termination, but who now encountered a popular opposition of such unexpected force that the Government laid aside the bill, with the explanation that if it were passed the next year the requirements of the convention would be sufficiently fulfilled, bringing it forward for the second reading only a few days before the session closed, although Mr. Gladstone had insisted that an opportunity for discussion should be afforded. The local government bill for Scotland and the supplementary provisions for England and Wales were brought in early in April. They were afterward consolidated and passed as a single measure. Two other Scotch measures—the parochial councils bill and a bill relating to the procedure for private bills—were advanced early. The local government measures were ordered to a second reading before the close of May. Mr. Balfour in June introduced some Irish

bills based on the report of the public works commission. The Irish drainage bills provide for the arterial drainage of the basins of the Bann, Barrow, Shannon, and Shuck. The light railways bill is intended to provide Ireland with a network of narrow-gauge railroads for the cheaper conveyance of agricultural produce. The tithe rent-charge recovery bill was likewise brought in before the Whitsuntide vacation.

The progress in supply had been so slow that when Parliament reassembled on June 17 the Government abandoned many measures and placed others in the background with little chance of their coming forward before the close of the session. William H. Smith, leader of the House, announced that, besides the Scotch local government and universities bills and the measures for public works in Ireland, the Government would proceed with the bills relating to a board of agriculture, pilotage of merchant shipping, land transfers, tithe rent-charge, Sunday closing in Ireland, and the civil service, and if there were time would take up the bill to recoin light gold pieces, the technical education bill, and a few others, of which the Scotch parochial councils and private bill procedure bills were soon afterward dropped. The land transfer bill is the same measure that was discussed in 1887, and read a third time in the House of Lords. It provides for a system of registration and greatly simplifies the conveyance and inheritance of real estate, assimilating it to personal property. The solicitors who profit by the cumbersome and antiquated forms, and the complicated and insecure titles, opposed the measure, and Conservative peers objected to the proposed changes in the devolution of land. On the motion of Lord Bath a provision that land left by will should, like personal property, be vested in the executors for a year, was omitted from the bill. The Prime Minister thereupon, declaring that the clause was vital, declined to proceed further with the measure. The bill to establish a board of agriculture encountered no serious criticism except from those who thought that the chief of the new department should be made an independent minister. It went through the House of Commons, and was passed by the House of Lords without alteration near the end of June. The merchant shipping pilotage bill also got through without difficulty. In the beginning of July two messages were delivered from the Queen, asking that pecuniary provision should be made for Prince Albert Victor, eldest son of the heir-apparent, and for his daughter Princess Louise of Wales on her marriage with the Earl of Fyfe, who was subsequently created Duke of Fyfe. There was a widespread feeling that Parliament ought not to recognize a general obligation to provide for the grandchildren of the sovereign, although none but the Radicals were inclined to refuse to grant allowances to the Prince of Wales's children under the circumstances of this particular case, as their father was known to be unable to provide for them adequately. The Government argued that the nation was bound to make good the expropriated revenues of the Crown lands and the duchies of Lancaster and Cornwall, but Mr. Labouchere answered that £385,000 a year paid to the Queen, £60,000 to the Prince and Princess

of Wales, £82,000 to junior members of the royal family, and £20,000 to the family of the Duke of Cambridge, made a sum considerably in excess of those revenues. The question of the Queen's savings was touched upon, and they were said by the ministers to be much less than was generally supposed. The matter was referred to a committee representing all sections of the House. A precedent was found for dotations to the royal family in the third generation, and the Queen refused to abandon a right thus supported, but let it be known that she would not press the claim in the case of the children of her other sons and daughters. The Government stated that the exclusion of that claim ought to form part of the next settlement on the accession of a new sovereign. The committee did not recognize the right, but approved a compromise proposed by Mr. Gladstone. The royal grants proposed by the Government amounted to £60,000 a year for the lives of the two recipients. Mr. Gladstone's proposition, which was adopted by the Government and approved by Parliament, gives the Prince of Wales the smaller sum of £36,000 a year during his life to enable him to make provision for his children. Mr. Labouchere and his followers opposed the granting of any allowance and subsequently with a few more members of the Liberal party, voted for the amendment offered by John Morley condemning the report of the committee on the ground of its lack of finality. Mr. Gladstone was deserted by every member of his last Cabinet and by all the English and Scotch Liberals, except Sir Lyon Playfair, Mr. Majoribanks, and about a dozen others. Mr. Parnell, however, with the bulk of the Irish party, stood by him in spite of the threats of the Radicals to withhold their support in the discussion of the Irish estimates. Sir William Harcourt—the rival candidate for the succession to the leadership of the party—was not found among the 116 supporters of Mr. Labouchere's motion, but was one of the 134 who voted for Mr. Morley's amendment.

The local government bill for Scotland was introduced in a comprehensive speech by the Lord Advocate, Bannerman Robertson. Royal and parliamentary burghs with a population of more than 5,000 have hitherto maintained an independent police force. The new law merges all burghs with less than 7,000 population into the counties for police purposes and for the purposes of the acts relating to contagious diseases of animals. In the Scotch county the keeping of the peace and the control of the police has been the concurrent charge of four or five distinct authorities, the most important of which was the Board of Commissioners of Supply, consisting of all the land-owners of the county whose estates exceeded £100 in annual value. The commissioners were clothed also with the power to levy rates, and this they have exercised with more regard to their own interests than to justice by taxing unfairly the smaller owners of property and the feuars or lease-holders. The act creates county councils, elected by household suffrage, with powers analogous to the similar bodies in England. Powers of the justices of the peace, except the power of licensing and those of the commissioners of supply, with important exceptions, are vested in the county

councils, which are intrusted also with the administration of the contagious-diseases act, the powers intrusted to local authorities by the public health act as regards the appointment of medical officers, the power to oppose private bills, and the power to make by-laws. The power of rating was not confided to the new popular body; neither was it left to the arbitrary decision of the commissioners of supply. The act provides that the existing burden upon property shall be officially ascertained and declared by taking the average for the past five years. These fixed rates shall continue to be paid by the owners of property, but when the county councils call for more money, the commissioners of supply shall levy the new rates on both owners and occupiers. Capital expenditure, however, is still to be kept apart, as formerly, and is to fall upon owners alone. Capital outlay in the construction of new roads, bridges, and similar works will be controlled by a joint committee composed of seven members of the county council, seven commissioners of supply, and the sheriff as presiding officer. All loans must have the consent of the joint committee, which will also have control of the police. The Liberals strenuously contended for an amendment giving the county councils full control of the police, and proposed to abolish the unpopular commissioners of supply; but the Government cited the precedent of the English Local Government bill, which established a joint control of the police, and urged the inexpediency of placing the police under direct popular control in the Highland counties, owing to the crofter agitation, and obtained a majority of 205 to 113 against the amendment, in spite of Mr. Gladstone's plea that Scotch questions ought to be decided by a majority of the representatives of Scotland. The bill provides that the proceeds of local licenses and probate duties surrendered to the county councils by the Central Government in excess of the grants in aid for police maintenance, medical relief, main roads, and pauper lunatics, shall be applied to the reduction of school fees in both board and voluntary schools. This clause was assented to with much reluctance by the Conservatives, who feared that its adoption would lead to demands for free education. County councils are empowered by the act to combine for common purposes. The elections take place biennially. The act passed the House of Commons in the latter part of July.

On the 31st of July the Scotch universities bill was read a third time, after being discussed at great length by a section of the Scotch members, who were dissatisfied with the constitution of the proposed university courts and of the controlling commission. The bill for simplifying and improving the parochial councils was a part of the scheme of local government reform unfolded by the Lord Advocate, who presented at the same time the other Scotch bill that was dropped, establishing a supervision over private bills, which, after being twice read in Parliament, would be examined by a commission consisting of a Scotch judge and two commissioners, who would sit in the locality affected by each bill and consider the report of the county council.

The Irish bills were brought forward after Scotch legislation was out of the way. The in-

troduction of the four drainage bills was uncompromisingly opposed by Mr. Conynbicare and by a few of the Irish members, though the majority of them would not venture to resist a project that was believed to be locally popular in Ireland. The Government made no progress with them, except that one of them was referred to a select committee. The light railways bill met with little resistance except on the part of a small group of Radicals who are opposed to any expenditure of English money in Ireland, and finally became law.

The tithes bill was carried to a second reading in the face of a fierce opposition emanating chiefly from the Welsh members by a majority of only 57. The Government had promised measures for the commutation and redemption of tithes which would allay the grievances of the Welsh tithe-payers by removing the object of contention. The bill was simply a coercive measure directed against the tenant farmers of Wales who have refused to pay tithes to the clergy of the English Church. The bill that the Government introduced in 1887 made the land-owner primarily liable for tithes, but this one transferred the liability of the tenant, and provided that receivers of tithes, instead of being compelled to resort to the troublesome and often fruitless process of distraint, could sue the occupier of the land in the county court and obtain judgment, as in the case of ordinary debts, which could be executed against the personal property of the tenant. Sir William Harcourt led the Opposition against the measure, which had many opponents among the Conservatives and Liberal Unionists who represented farming constituencies. The Government was supposed to have abandoned the measure, when Mr. W. H. Smith in the middle of August announced that it would be proceeded with. Mr. Gray, a Conservative, representing a county division of Essex, moved in committee that the owner, not the occupier, of the land should be liable to be sued in the county court for tithe. The vote on this instruction showed a majority for the Government of only 145 against 141. The Government was then compelled to remodel the bill in order to escape defeat, and a day or two afterward announced a series of alterations, including one that embodied the defeated instruction. Sir William Harcourt contended that the bill thus altered constituted a different measure, which could only come before Parliament in the form of a new bill. In this view he was supported by the opinion of the Speaker. Mr. W. H. Smith then announced that the bill must be sacrificed, and persisted in that intention, although Sir W. Harcourt, as leader of the Opposition, assured him that a bill embracing the proposed changes would have his cordial support. A resolution in favor of disestablishment in Wales was presented in the House of Commons by Dr. Dillwyn, and obtained 231 votes against 284. Mr. Gladstone, who abstained from voting, subsequently was compelled to satisfy the Welsh Radicals with an assurance that on another occasion he would support the demand.

The principal private members' measures that were carried through the House of Commons were Sir Joseph Pease's bill for the abolition of coal dues and Mr. Mundella's bill to prevent

cruelty to children, to which the Attorney-General added important amendments. A clause prohibiting the employment of very young children in theatres gave rise to much difference of opinion. The infectious-diseases-notification act, intended to enable sanitary authorities to forestall and prevent epidemics, requires the head of the family or the nearest relative of a patient, or the person in charge of the building or in attendance on the patient, to send notice to the district health officer when any case of small-pox, diphtheria, scarlatina, membranous croup, and typhus, typhoid, enteric, relapsing, continued, or puerperal fever occurs, and requires a similar notification from every medical practitioner that is called to such a case, who will receive a fee from the health authorities of 2s. 6d. for every case in private practice that he reports and 1s. for every case in a public institution. The bill for legalizing marriage with a deceased wife's sister was debated at unusual length in the House of Lords, and was negatived by 147 votes against 120, which was a more decisive defeat than its advocates have suffered for several years. The bill for the restoration of the coinage was passed. A bill for intermediate education in Wales was introduced by a private member, Stuart Rendel, a Liberal, and was passed into law with amendments made by the Government.

Mr. Robertson, a Radical Scotch member, made a motion censuring the Government for instructing the British minister at Paris to remain away from the festivities of the Exposition. Mr. Gladstone and Mr. Morley condemned the action of the Government, and the latter and about 200 other members of the Opposition signed an address to President Carnot censuring Lord Lytton's absence. Another attack was made on the Government in regard to the restrictions placed on the action of British delegates to the proposed labor conference at Berne, who were enjoined not to discuss the question of the official regulation of hours of labor. Irish questions were repeatedly brought up on motions for adjournment, and the Irish estimates gave rise, as usual, to acrimonious debates. On one occasion Mr. Balfour so incensed Edward Harrington, who had recently been released from an Irish prison, by a contemptuous gesture that the Irish member was with difficulty restrained from personal violence. Mr. Conybeare, while confined in Derry jail, conveyed to his friends in Parliament information of the unwholesome and sickening condition of the cells, and when two of the Falcarragh prisoners died there the Irish executive was held responsible by Mr. Sexton in an impassioned speech. The disclosure of the Pigott forgeries and of the questionable expedients, in which Government officials were concerned, that were employed in seeking evidence against Mr. Parnell and his associates was expected to disrupt the Unionist alliance. This and the evictions and imprisonment of Irish members produced a reaction in public opinion, for there was a large falling off in Unionist votes in several constituencies in which elections were held. A change of opinion in favor of the Liberals began to manifest itself in the summer of 1887, and in the two years out of sixty contested elections the party that had been defeated in 1886 gained twelve seats and lost only one. In

Scotland a Liberal was returned for every seat that was vacated. Yet the cohesion of the Unionist alliance in Parliament was greater than that of the Gladstonians. Mr. Parnell and his more faithful followers showed more fidelity to the Liberal chief than his own party, giving up at his request the harassing tactics that had disturbed and protracted former sessions of Parliament. The Radicals showed signs of breaking away from the guidance of the party chief on Irish questions as well as in other matters. Mr. Morley, Sir William Harcourt, and Sir George Trevelyan, each manœuvred to gain for himself the support of the Radicals, and thereby the chance of future leadership of the party, which showed a preference for Mr. Labouchere as a leader, at least in opposition. Lord Randolph Churchill, after holding himself aloof from active politics for a season, signaled his return by a speech in Parliament in advocacy of the royal grants, in which he derided the inconsistencies of the Radicals, and out of doors he unfolded a vast scheme of socialism around which he expects to rally a great party of working-class Tories. Mr. Goschen sustained his reputation as a debater, and the new Lord Advocate established one by his presentation of the programme of Scotch local government reform. Mr. Balfour exhibited improvement as a speaker and parliamentarian, although he was not less reckless of reproach or bitter and contemptuous toward his adversaries than in former sessions. At the very close of the session he made an announcement of an important Irish measure to be brought in by the Government in the next session of Parliament, with the expressed design of "meeting the wants and wishes of the Catholic population of Ireland," and the covert political purpose of causing the division and disintegration of the Home Rule party. The scheme vaguely intimated by the Irish Secretary includes the establishment by means of state endowments of a Catholic university in Ireland. The announcement was welcomed by Mr. Parnell, but was viewed with alarm by his English and Scotch Radical allies, to which Mr. E. Robertson gave expression in the prediction that it "would drive a wide wedge between the Irish and the Radical party."

The London Strike.—The dock laborers of London suddenly struck work in the middle of August. The managers of the dock companies refused to receive the strikers or consider their demands. The public, on learning the pay of the men and the conditions of their work, generally sympathized with them. The stevedores and lightermen and other organized and unorganized trades, such as the journeyman tailors, the bakers, gasmen, printers, metal workers of various kinds, firemen, draymen, and others, struck out of sympathy or in order to press claims in their own behalf. Before the end of the month more than 150,000 men had quit work, and thousands more were thrown out of employment. Perishable commodities on board the ships in the harbor were lost, and commerce was blocked. John Burns placed himself at the head of the strikers. Cardinal Manning labored to bring about a settlement, and with him the Anglican Bishop of London and the Lord Mayor associated themselves. The strike of the tailors

was finally ended by working hours being reduced to 10½ daily. The dockmen demanded 6*d.* an hour for a day of 12 hours. Money was sent to support the strike in large amounts from the workingmen of Australia. The companies agreed to the advance from the 1st of January, and when the strikers refused this compromise the Bishop of London declined to act longer as mediator. At length, on Sept. 14, the strike was ended by an agreement that the new wages should begin on Nov. 4. The strike cost the parties concerned at least £2,000,000.

The Tithe Agitation in Wales.—The stand taken by the Nonconformist farmers of Wales against the payment of tithes has caused considerable distress to the parish clergy in Wales. The total amount of tithes is £274,493, only half of which is paid to the parochial incumbents, while the remainder goes to non-resident clergymen and laymen. The Bishop and Dean of St. Asaph and many other clergymen signed a circular asserting that if the tithes bill failed to pass simple starvation awaited a number of the Welsh clergy. At Penbryn, Cardiganshire, a serious riot occurred on March 19, 1889. On May 1 the distraining agent returned, accompanied by two magistrates, the chief constable of the county, and 46 police. When the party entered a farm-yard, horns and bells assembled the people of the district, who came armed with clubs and interrupted the proceedings by stoning the distraining agent, after the chief constable had ordered the people to disperse. On the following day the distraining party was allowed to proceed without serious molestation. In Carmarthenshire the bailiffs were prevented by violence from executing their writs. In Pembrokeshire they were hunted with dogs and intimidated into promising not to come again. The process of distraint, even when not hindered, was useless for the collection of tithes, and when it led to disturbance it only served to furnish Mr. Gee, of Denbigh, and other oratorical and journalistic advocates of the abolition of tithes and the disestablishment of the Church in Wales with fresh fuel for the agitation, and Welsh members of Parliament with subjects for annoying questions.

Irish Evictions.—The eviction of Irish tenants by the aid of the constabulary, which was renewed in 1888, after a truce that the Government was compelled to grant by exercising what was called its "dispensing power," was made difficult by the determined support given to the "plan of campaign" by the Irish party, encouraged by the approval of the English Liberals. The number of evictions in 1888 was 773. The number of persons reported as boycotted was 712. The number of warrants of eviction issued was 10,752. From the taking of office of the Tory Cabinet till 1888 the evictions were 3,951. The evictions were pursued with fresh determination in the winter of 1888-'89, especially in the west of Ireland, where all the agricultural value of the land had been imparted to it by the rack-rented peasantry, whose condition of constant distress had been aggravated through a failure of the potato crop. The "plan of campaign" by the beginning of 1889 had effected a settlement on 57 Irish estates. The difficulties on the estate of Col. Vandeleur had been composed by the award

of Sir Charles Russell, to whom the dispute was referred for arbitration; 500 tenants paid the rents agreed on, and the evicted tenants were restored to their homes, except those who were serving sentences in prison for obstructing the bailiffs. In the early part of the year there were 22 estates under the "plan of campaign." Down to May, 1889, the number of applications for fair rent in the land courts was 197,658, and of these the commission and sub-commissions had disposed of 147,112. There were 30,917 appeals, of which 23,741 had been decided. The number of agreements out of court was 97,435. Under the land-purchase act the total loans applied for amounted to £6,759,182, and the total amount sanctioned was £5,319,481. During the seven years of the working of the land act to August, 1888, an aggregate rental of £3,851,891 had been reduced to £3,093,807, a diminution of nearly 20 per cent.

In Donegal, where the people were reduced to a diet of Indian meal, the landlords took advantage of the prevailing distress to turn the people from their homes. On the estate of Wybrant Olphert the tenants offered resistance, encouraged by William O'Brien and other members of Parliament. The police, when axes and crowbars failed, forced an entrance into the barricaded houses with their great battering-ram. They were received with bricks and stones and showers of hot water, until the riot act was read, and the soldiers who assisted in the evictions prepared to fire, when the besieged usually allowed themselves to be arrested quietly. The resident magistrate received orders from Dublin to employ the military effectively. A tenant named Neal Doogan, lately returned from America, made loopholes in the walls, and with twenty peasants, armed with rifles, refused to yield, until finally bloodshed was averted by the intervention of the parish priest. The state of feeling was so dangerous, and the work of evicting so difficult, that on Jan. 7 it was interrupted. The leaders of the "plan of campaign," which had been in operation for two years, were Father McFadden, of Gweedore, and Father Daniel Stephens, assistant priest in Ardsmore. There were 38 prisoners taken during the execution of 14 eviction warrants on the Ardsmore estate, which occupied five days, and was only carried out with the assistance of 200 military and police. The rent of the evicted tenants was less than £60 in the aggregate. On the neighboring estate of Capt. Hill, in Gweedore, the "plan of campaign," under the direction of Father McFadden, had been victorious. After the January evictions warrants of arrest were issued for Fathers McFadden and Stephens. District Inspector Martin went with eight constables to Gweedore, on Sunday, Feb. 3, and when Father McFadden emerged from the chapel where he had said mass in his priestly vestments attempted to arrest him in the presence of the congregation. When the inspector laid his hands on the priest a woman stepped between, and then a fight ensued between the police and the people, during which Martin was fatally beaten. The reserve of 80 police then came up, and the priest, who had escaped into his house before the homicide took place, surrendered himself. Father Stephens was sentenced to six months' imprisonment for

conspiracy, but was released in May on the ground of failing health, although he protested that his health was good. Some of the evicted tenants retook possession of their houses, and in April they were driven out by the police. Mr. Conybeare, who was present, was arrested and sentenced to six months in prison on the instruction of the court that cheering for the "plan of campaign" was an overt act of conspiracy. His companion, an Oxford student named Harrison, was arrested for giving bread and tea to the besieged tenants. The constabulary, of whom forty were in the neighborhood to protect caretakers, obtained possession of some of the houses by resorting to the legal subterfuge of hiring them as barracks. The police did their utmost to make the houses untenable by breaking down walls and smashing partitions, furniture, and utensils. Women and old men were the persons arrested, and some of them were grievously maltreated.

In May Mr. Olphert proceeded to evict tenants on the Glasserhoo portion of his estate, taking out 43 warrants. T. W. Russell and C. A. V. Conybeare, acting in behalf of the landlord and the tenants respectively, were authorized to effect a compromise, but their negotiations had no result, because Mr. Russell insisted as a prior condition that the "plan of campaign" must be abandoned. The district is one of exceptional barrenness, scarcely fit for human habitation. Conservatives and Liberal Unionists in England raised £2,000, the amount of his rents, to enable Mr. Olphert to continue the struggle. The evictions on May 16 and 26 were attended by the same scenes that had marked the earlier ones. Although hundreds of warrants were taken out, only 57 ejectments were effected on the estate. Father McFadden was arrested on a charge of murder, but was tried on that of obstructing the police. Nine peasants were tried on the charge of willful murder in October. The priest was released on his own recognizance. Some of the others, by advice of counsel, pleaded manslaughter. William Coll was sentenced to penal servitude for ten years, two others were sentenced for seven years, one for five years, and ten for terms ranging from two to six months in jail. In October ten more tenants on the estate were evicted.

On the estate of Lord Massereene the "plan of campaign" was only partially successful, as he succeeded in finding Protestant tenants for some of the evicted farms, for which he was denounced by a meeting of Roman Catholic clergy presided over by the Primate. Many landlords were enabled to combat the "plan of campaign" with the aid of the Cork Defense Union. This association usually agreed to pay rates and taxes and to supply one third of the capital for stocking the farms, while the landlord supplied the other two thirds. The farms that it rented on these terms were almost invariably used by the Union for grazing purposes. On May 28 Lord Lansdowne resumed the evictions on his Luggacurran property, putting out 30 tenants, who made very little resistance to the sheriff, who was protected by a force of 130 police and 100 soldiers. The tenants claimed 20 per cent. reduction on judicial rents, and would have accepted 15, but Lord Lansdowne would give no abatement, and refused to reinstate evicted ten-

ants. The land act of 1887 would have secured a reduction of 13 per cent. for all, had not most of the tenants been evicted before it became law. The proceedings were taken against the remaining ones chiefly because they would not desert their fellows.

On the Clongorey estate 12 tenants were ejected in March, their crops having been destroyed by a freshet and an official valuer having advised the reduction of 30 per cent. that was demanded. Writs were taken out in the summer against other tenants.

On the estates of the Marquis of Clanricarde there were fresh evictions in the summer of 1889, making the total number 110, depriving more than 600 persons of their homes, while 170 had been sent to prison for various causes under the coercion act. More than 800 tenants and their families were still living on the estate who were liable to be turned out unless an agreement were come to. The tenants offered to purchase their holdings on reasonable terms, or to refer matters in dispute to arbitration, or to agree to any moderate terms, on condition that the evicted families should be allowed to share them. Lord Clanricarde, whose harshness was reprobated by all parties, replied to this proposition by ordering fresh evictions. He was ready to grant the abatement that at first he had refused, but would not consent to the reinstatement of the evicted tenants. Bishop Healy, who was averse to the "plan of campaign" and had dissuaded the Portumna tenants from throwing in their lot with those of the Woodford part of the estate, tried for months to bring about a settlement, and after receiving insolent treatment from Lord Clanricarde and finding that no reasonable terms would be granted, he bade the tenants to go out, but to offer no violence to the officers of the law. Lord Clanricarde asked time and again for the assistance of the Government in carrying out evictions at Portumna, but on various pretexts it was refused until the summer of 1889. The tenants, following the advice of the bishop, offered only a passive resistance, except in a few cases. Two persons were severely injured by the police. Strenuous efforts were made by the Archbishop of Dublin and other prelates to induce the landlords in general to consent to the principle of arbitration. There were evictions on the estates of Lord Kenmare in Munster, on which the land commission reduced rents 25 per cent.

On Talbot Ponsonby's estate at Youghal, as on that of Mr. Olphert, the entire value of the land for productive purposes had been created by the labor of the tenants. The tenants were not, like the others, poverty-stricken, but were in most cases able to pay their rents. They complained, however, that the rents had been raised, and that their leases were so worded as to deprive them of the benefits of the land act of 1870, and of most of the benefits of the act of 1881. Through the mediation of Canon Keller a satisfactory settlement had been almost arrived at, the tenants offering £104,000, or only £6,000 less rent than the agent asked, when Mr. Smith-Barry, member of Parliament for South Huntingdon, formed a syndicate of landlords called the Land Corporation, which took the entire estate off the landlord's hands, and in Feb-

ruary, 1889, the negotiations were broken off. In carrying out the evictions in June a cordon of police was drawn around each house. About 30 tenants were evicted on decrees that were obtained as early as April, 1887. In connection with the eviction of Mary Connors at Gortroe Colonel Caddell ordered the chapel and yard that were close by, in which were Canon Keller, W. J. Lane, member of Parliament, and a mocking crowd of the tenants' friends, to be cleared by the police, who assaulted the priest in carrying out this command. John Cronin and Philip Dea, who plowed up their crops before being evicted, were sent to jail on a charge of malicious mischief. Michael Kirk, who was £469 in arrears, barricaded his doors, which were forced open by Capt. Plunkett and his constabulary. O'Brien, when an entrance was made in his house, still continued to fight with the courage of desperation, till he was overpowered and led off to jail with his family. A widow with her son and four daughters compelled the emergency men to retreat with a volley of stones after a breach had been made in the house wall, and continued the combat for half an hour. The Government employed 300 or 400 police constables and 100 soldiers in effecting the evictions. Similar struggles took place on the farms of William Forrest and Edmond Lynch. The houses of the evicted tenants were pulled down by the emergency men. The tenants had been prepared in 1888 to submit their cases to the land commission, and were only prevented from doing so by the serving of eviction notices on those who were in arrears, which shut them out of court. The tenants renewed their offer to Mr. Smith-Barry to have their rents fixed by the county court judge, or to refer the entire dispute to arbitration. He and his associates admitted that the reductions asked for were fair, and were no more than the courts had enforced on other estates in the district. They only objected to the "plan of campaign," and were prepared to deprive of their ancestral homes all the 2,000 people living on the estate, in order to defeat the combination.

Arthur Hugh Smith-Barry, the English member of Parliament who interfered to prevent Mr. Ponsonby from yielding to the "plan of campaign," was himself a large landlord in Ireland as well as in England, owning estates in counties Tipperary and Cork. He had previously taken a prominent part in the Landlords' Defense Union, the Corporation for Working Derelict Farms, and other agencies for combating the "plan of campaign." Mr. Clancy, in the House of Commons, on June 21, when his action was made the subject of a resolution of John Ellis, warned Mr. Smith-Barry that his own tenants might take reprisals. Two days later, W. O'Brien, W. J. Lane, and J. C. Flynn called together the Smith-Barry tenants in Tipperary, and invited them to avenge the wrongs of the Ponsonby tenants by making common cause with them by paying no rent till their landlord desisted from persecuting the 400 families on the Ponsonby estate. The tenants in and near Tipperary entered into the scheme with enthusiasm. Mr. Smith-Barry refused to receive a deputation that desired to remonstrate against his course of action. The mayor and public boards of Cork

called an indignation meeting of citizens to express sympathy for the Ponsonby tenants for the following Sunday. This meeting was proclaimed and prohibited by the Government, an act that caused excitement in Cork and a concourse of people in the streets. Mr. O'Brien came to Cork on that day, and as he stepped from the train amid the cheers of the people, he was arrested. The police and military charged upon the crowd on the station platform at the same time, striking and wounding men, women, and children, although there had been no sign of a disturbance. Over twenty injured persons were taken to the hospital. Patrick O'Brien, another member of Parliament, who stepped up to shake hands with the prisoner, was clubbed with the stock of a rifle and dangerously wounded. The soldiers fired on the railroad train, wounding one of the guards and another man. The arrested leader was taken to the police station, where bail was refused, and was not permitted to see his counsel, Maurice Healy, member of Parliament. The charge on which he was arrested was that he had made a speech at the secret meeting at Tipperary on the preceding Sunday, inciting the tenants of Mr. Smith-Barry to form a criminal conspiracy. Mr. Lane was arrested at Cork on the same evening on a similar charge. In the streets on that day, July 1, there were riots after the arrest of Mr. O'Brien, in the course of which policemen were stoned and citizens were beaten. The Irishmen in Parliament accused Mr. Balfour of causing the arrest of William O'Brien in order to prejudice the trial of an action for libel about to be presented to a jury at Manchester that he had brought against the Marquis of Salisbury, who in a public speech had accused him of instigating murders and outrages.

Archbishop Croke, in a published letter, approved the combination of Mr. Smith-Barry's tenants. This was only the beginning of a general scheme of united action that the Irish leaders intended to organize among the tenants for the purpose of fighting the coalition of landlords formed by Mr. Smith-Barry, who, by means of his various joint-stock companies for turning evicted farms into cattle pastures, supplying the necessities of boycotted persons, furnishing caretakers and Protestant tenants, and giving financial aid to distressed landlords, gave efficient support to the Government in its efforts to break down the "plan of campaign." The "plan of campaign" had been at first successful, supported as it had been by abundant contributions from America and Australia, but these now began to fall off, while English as well as Irish landlords and Conservatives gave freely to the hostile organizations, and the Government was willing to place battalions of troops at their disposal for the purpose of clearing the tenants from the remaining "plan of campaign" estates. The purpose of Mr. Parnell and his associates was to establish, not a system merely auxiliary to the "plan of campaign," but a substitute for that method of warfare which had received but a half-hearted approval of the English Home Rulers, and not even the undivided support of the Irish party. The new organization was planned by Charles S. Parnell and the Archbishop of Cashel, Dr. Croke, with the help of eminent lawyers, as a national combination of

tenants for mutual protection that would not conflict with any of the provisions of the crimes act and could not be proclaimed or suppressed by the Government under any existing laws. The association was at first called the Tenants' Defense Union, but this name was advisedly changed to the "New Tenants' Organization."

The "plan of campaign" on Mr. Smith-Barry's Tipperary estate was only partially successful, for when he ordered seventeen holdings in Tipperary and the immediate vicinity to be sold, all except four either settled beforehand or bought in their farms. Five of the leaders of the movement, large shopkeepers in the town, deserted the combination rather than lose their most lucrative custom. They were boycotted, their windows were broken, neighboring farmers who paid their rent had their property destroyed, and the rent-office was damaged by a gunpowder explosion. A large force of police and detectives was kept in the town, and many persons were arrested for boycotting; yet many acts prejudicial to the interests of the landlord were committed, and in the remoter parts of the estate the anti-rent combination was held together, and in October the Government proclaimed the baronies that compose the estate. The first charge against Mr. O'Brien was abandoned, and on Aug. 22 he was tried, with J. Gilhooly, another Irish member of Parliament, for having on June 30, at Clonakilty, taken part in a criminal conspiracy to induce tenants on the Smith-Barry estate, in County Cork, not to pay their rents.

Political Trials.—The Government, in taking measures to crush out the "plan of campaign," proceeded more rigorously against the political and clerical leaders of the people. The courts made new rulings and resuscitated ancient statutes for the purpose of committing them to jail, or convicting them under the coercion act, and the prison authorities treated the political prisoners with unexampled harshness until the protests of the Opposition forced the Government to modify the prison rules. On Jan. 2, Mr. Finucane was sentenced at Ballyneety to a month's confinement for dissuading farmers from renting farms made vacant by eviction. William O'Brien was served on the same day in Dublin with a summons to answer a complaint of criminal conspiracy, and on Jan. 10 received two additional summonses charging him with having, by a speech at Ballyneal on Sept. 30, 1888, entered into a conspiracy to compel and to induce persons not to take evicted lands. Messrs. Harrington and Sheehan were confined in jail on similar charges, and Mr. Sheehy was arrested in Glasgow on Jan. 20, having evaded arrest in Ireland in order to take part in Liberal demonstrations in Scotland. Mr. O'Brien was tried at Carrick-on-Suir, where he was defended by Mr. Healy, who, in consequence of an altercation with the opposing counsel, left the court. A disturbance ensued, which culminated in a riot when the officers attempted to clear the court-room. In the midst of the disorder Mr. O'Brien disappeared. After going over to England and taking part in a political demonstration at Manchester, he returned to undergo the punishment that the court had decreed, although he was absent and undefended. He was lodged in Clonmel jail, where he refused to put on the convict dress.

The warders tore off his own clothes after a desperate struggle, and left him unconscious on the bare floor of the cell, after clipping his hair and shaving his head. The Lord Mayor of Dublin, Thomas Sexton, telegraphed to Mr. Balfour, who was then in Dublin, that the prisoner had lain naked and speechless in his cell for many hours, and that public indignation was at a dangerous pitch, but received no reply. Popular demonstrations were held in Dublin, Sligo, Queenstown, Limerick, and other towns. The prisoner persisted in his determination not to wear the prison garb, and, after four days, on the strength of a medical report, his clothes were returned to him, and he was taken to the infirmary, protesting that, though exhausted, he was in no way sick. The doctor's report was given in obedience to a dispatch from the Chief Secretary, who afterward said that he was not disposed to "permit Mr. O'Brien to ruin his constitution for the purpose of injuring Her Majesty's Government." On Feb. 19 he was tried at Tralee on the other charges. On account of a disrespectful expression in regard to Col. Turner, the zealous commander of the police, who had formerly been a Nationalist, Mr. Healy was removed from the court by two constables. Mr. O'Brien was sentenced to six months' imprisonment without hard labor, that penalty being remitted on the ground of his feeble health. He was offered his liberty if he would promise not to engage in the "plan of campaign," but refused.

Dennis Kilbride, the Luggacurran tenant who had been elected to Parliament after his eviction, was arrested in England and taken to Kildare to be tried on Feb. 7. Edward Harrington was prosecuted for reporting in his newspaper a speech delivered at a forbidden meeting, the speech being one that he made to his constituents. Like Mr. O'Brien, he was offered immunity from punishment if he would undertake not to repeat the offense, and on his declining received the savage sentence—imposed in his case for the first time on a member of Parliament—of six months' imprisonment with hard labor. He struggled desperately against being shaved, and was treated much more harshly than Mr. O'Brien. Timothy Harrington, though his connection with the paper was only nominal, was also convicted. Local organizers of the "plan of campaign," like John Kelly in Donegal, were prosecuted and given severe sentences; also priests, like Father Stevens, who was convicted for the second time at Letterkenny in February for his share in the tenants' combination on the Olphert estate. Mr. Finucane's health broke down before he had been a month in prison, and he was removed to the hospital. Mr. Carew, who was sentenced for four months for violation of the crimes act, resisted being put in prison clothes, and when Mr. Parnell protested against such indignities in the House of Commons, Mr. Balfour declared that the fearful crimes for which members of the House were imprisoned would never be accorded exceptional treatment while he remained Irish Secretary, and that he admitted no distinction "between a man who shoots a land-grabber and a man who makes speeches having distinct reference to evicted farms." It was shown in the debate that prison dress and hair-clipping had been originally prescribed for sanitary reasons, and

that only in the case of political prisoners were they resorted to for the express purpose of humiliating and degrading the prisoners. Only one prisoner before Mr. Harrington had been deprived of his beard. The great demonstrations in England and Scotland, as well as in Ireland, which were known as the "national protest," warned the Government that it had gone too far in subjecting Irish prisoners to novel indignities and unusual punishments. As the result of an inquiry by a select committee the Government yielded, notwithstanding Mr. Balfour's determined utterance, and on March 27 new rules were published, in accordance with which a prisoner may obtain exemption from the necessity of wearing the prison dress if it is not requisite for his health or cleanliness, and may retain his hair and beard if they do not offend against the same conditions; and, further, the governor or surgeon of the prison may direct the times and places for his taking exercise in the open air. John O'Connor introduced into Parliament a bill to secure for crimes-act prisoners the treatment of first-class misdemeanants, which was rejected by a majority of 259 against 193.

The arrests of Fathers Farrelly and Clarke in the latter part of February caused much excitement. On March 7 Mr. O'Connor, Dr. Tanner, Mr. Condon, and others were brought to trial in Tipperary town for offenses under the crimes act. During the trial a riot occurred, and many persons were severely injured, among them two police constables. The character of the resident magistrates was frequently attacked in Parliament. One of them, Captain Segrave, was dismissed after it was brought to light that he had been turned out of the service of one of the colonies for taking bribes. Cecil Roche, at Tralee, who was noted for his arbitrary judgments and ferocious sentences, was the magistrate before whom the prisoners most obnoxious to the Government were brought. Mr. Cox was sentenced by him to four months of imprisonment for speaking in a proclaimed district, although the burden of his speech was a denunciation of crime and outrage. His sentence was diminished to one month's confinement as a first-class misdemeanant, and that of W. O'Brien to six months of hard labor was reduced, on appeal, to imprisonment for six weeks. This magistrate convicted 84 out of 90 persons against whom he heard charges. Four magistrates were successively applied to in vain to entertain a complaint on a regularly issued summons against Colonel Turner for battering down the door of the wrong man with his battering-ram in a series of evictions at Kilkee. In June the Rev. J. McCarthy, of Kilmeen, was sentenced to be confined in Cork jail for four months on being convicted of having used intimidating language toward a caretaker in his parish.

On July 29, after having completed a three months' sentence for a speech delivered in Cork, Dr. Tanner was brought before two removable magistrates on a charge of assaulting the police officer who took him to Clonmel jail on May 2. He appeared without counsel, saying that he would not subject gentlemen of position to insults, and defied the magistrates to do their worst, for he knew that they had his sentence in their pockets. For this language they ordered

him to be bound over to be of good behavior for twelve months or to go to jail for three months. For the alleged assault he was sentenced to one month's imprisonment with hard labor. The officer whom he had been accused of assaulting brought the prison van, which has never been used in recent times, to convey Dr. Tanner to jail. He refused to enter the van, ineffectually resisting an attempt to force him into it, and in the struggle he was injured. The sentence of three months' imprisonment in default of bail for contempt of court was afterward declared illegal by Chief Baron Palles. Twenty-eight Irish members were sent to prison before August for offenses against the crimes act.

Mr. O'Brien's suit against Lord Salisbury for slander went against him. It was based on an assertion made in a political speech that Mr. O'Brien had urged in language perfectly distinct that land-grabbers should be dealt with as they had been before, "that is to say, that they should be murdered, robbed, shot in the legs, their cattle mutilated, and their farms devastated." His trial for organizing the "plan of campaign" at Clonakilty was concluded on Aug. 22, when he was sentenced to two months' imprisonment without hard labor, and ordered to find sureties for his good behavior or remain in jail two months longer. The proceedings against Canon Doyle, of Ramsgrange, caused great excitement, which was exceeded by that which attended the trial and conviction of Father O'Dwyer, who was sentenced to imprisonment for three months without hard labor and to give bail or go to jail for three months and to a further imprisonment of two months for intimidation.

The condition of the prisons, and especially of Derry jail, was the subject of many questions and of one general discussion in Parliament. In that prison Mr. Conybeare, the English Radical member of Parliament, while undergoing imprisonment for aiding the evicted tenants of Mr. Olphert, contracted a loathsome disease. Another prisoner was killed by sunstroke because there was no shelter in the prison yard; several died of typhoid fever; and one Falcarragh prisoner named McGee died from privations and cruel treatment immediately after his release.

The Parnell Commission.—The Special Commission to inquire into charges brought by the "Times" newspaper against certain members of Parliament and other matters sat for thirty-three days before the end of 1888. The "Times" brought a multitude of witnesses from Ireland, and paid their expenses in London while they awaited examination. The Government declared that they would not merely assume an impartial attitude, but had the greatest desire to see the Irish members clear their character. Yet a month after the commission met a secret circular was issued to the police all over Ireland, directing them to collect information connecting members of the Land League and National League with agrarian crime and the names of witnesses who could give evidence against them. A large number of Irish constables, among whom were Sergeants Faussett and Gallagher, Head-Constables Irwin, Preston, and Quin, Michael Roche, and a man named Iago, were detailed for the nominal object of giving evidence, but really to assist the solicitor of the "Times," Mr.

Soames, in working up the case, and were detained in London for months for this purpose. A county inspector had a desk in the solicitor's office, where he kept a register of witnesses and gave them instructions as to their evidence. The police had access to the prisons in England and Ireland, and sought from convicts testimony against the Parnellites, inspiring them with hopes of pardon if it should be of the desired nature. Shannon, an agent of the "Times," was admitted to Maryborough prison, and allowed to take a deposition from Delaney, one of the Phoenix Park murderers, and administer an oath, on the pretense that he was an official of the Government. Head-Constable Preston visited Tracey on a similar errand. Captain Plunkett and Captain Slack spent many weeks in London prompting the lawyers of the "Times." District-Inspector Alan, in endeavoring to extract testimony from a boy named Walsh, menaced him with the exposure of a criminal transaction in which he had taken part. The resident magistrates in Ireland and the whole official establishment co-operated in getting up the case against the Irish members. The secret records of Scotland Yard and filed reports of spies and informers were placed at the disposal of Mr. Soames. An inspector in each district of Ireland was charged with collecting and tabulating information regarding crime that the lawyers of the "Times" wished to bring out under the direction of the resident magistrates Joyce, Horne, and Shannon.

The letters bearing the signatures of Charles Stewart Parnell, Patrick Egan, and others, which the "Times" had published in *fac simile* in its series of articles on "Parnellism and Crime," and which had led to the appointment of the commission, were traced to their author by Mr. Egan, who recognized in those attributed to himself certain expressions that he had used some years before in a correspondence with an Irish journalist named Richard Pigott. From the copies of his letters he discovered that the forged letters were made by transposing and combining words and phrases that he had actually written to Pigott, with but slight additions. Through Alexander Sullivan the proofs of the forgeries were sent to Mr. Labouchere in London. On examination it was found that the Parnell letters were manufactured out of a genuine correspondence that Mr. Parnell had with the forger in relation to the purchase of the "United Ireland" newspaper. The forged letters had been by Pigott offered to Houston, secretary of the Irish Loyal and Patriotic Union. A member of that organization gave Houston the money to purchase them. They were then taken to Macdonald, the managing editor of the "Times," who bought them for publication, paying £3,000 altogether. Pigott said that he had found them in an old valise in Paris. There were no envelopes or post-marks to indicate that the letters had been through the mails. Pigott was a notorious blackmailer and forger who made a trade of purveying false documents and scandalous exposures, yet no inquiries were made regarding his character. Mr. Labouchere, after discovering who was the forger, called Pigott to his house, confronted him with Mr. Parnell and his solicitor, Mr. Lewis, and extracted a written confes-

sion from him. Pigott then told the "Times" lawyer he could give no testimony that would help the case or tend to substantiate the authenticity of the letters, and asked to be excused from going upon the stand and exposing himself to the vengeance of the Dublin Nationalists. On being pressed, threatened, and promised with reward and protection, and seeing no way to escape from prison, except by adhering to his original story, he went before the commission with a statement that Mr. Labouchere had offered him a bribe of £1,000 if he would swear that the letters were forgeries. On being confronted with the parallel passages and other proofs of forgery, he broke down on cross-examination and admitted his crime. Two of the Irish police sergeants who were detained in London in the service of the "Times" had watched Pigott night and day before this, but now they conveniently let him escape to Paris, whence he traveled under a false name to Madrid, and there shot himself on March 1, having previously written to Mr. Soames that the confession that he had made to Mr. Labouchere was the truth. On Feb. 27, Attorney-General Sir Richard Webster, counsel for the "Times," withdrew the letters from the consideration of the court, and the "Times" published an apology saying that it accepted the truth of Mr. Parnell's testimony that the letters attributed to him were forgeries, and would acknowledge the same in respect to those falsely attributed to Mr. Egan, Mr. Davitt, and Mr. O'Kelly. Yet Lord Salisbury, a few days later, in a political address, said that he was not ready to admit that Mr. Parnell and his friends were not the authors of the letters. Mr. Parnell brought suit against the "Times" for libel.

Le Caron, who pretended to have been a major in the American volunteer army, a British spy in the ranks of the Irish Republican Brotherhood, disclosed the inner workings and secret purposes of the American Clan-na-Gael Association. He accused Patrick Egan, Alexander Sullivan, Thomas Brennan, and other prominent American Land Leaguers of being the leading spirits in the revolutionary organization and promoters of dynamite outrages, and also testified to conferences that Charles S. Parnell and other parliamentary leaders had with the chief Fenians when in the United States. This was the most direct evidence that was brought out during the investigation to connect the Land Leaguers of Ireland with the revolutionists, with the exception of Sheridan, Brennan, and Egan. The main drift of the evidence, on the contrary, showed separation and antagonism between the parliamentary leaders and the party of physical force.

The International Sugar Convention.—The convention that was signed at London on Aug. 30, 1888, by the representatives of Germany, England, Austria-Hungary, Belgium, Italy, Netherlands, and Spain, was joined in 1889 by Turkey and Egypt. France assented to the principle of the abolition of bounties, and reserved the right to join definitely after all nations producing raw or refined sugar had given their adhesion, and after the Government obtained knowledge of the laws of the various countries and had satisfied itself that they afforded a sufficient safeguard against direct or indirect bounties. The drawbacks paid on sugar

exports were not originally intended to be bounties, but after the discovery of the osmose and elution processes and of chemical methods for recovering the uncrystallized sugar in molasses, with other improvements, had increased the saccharine yield, which the law fixed at a ton of sugar to 12½ tons of beets, until finally a ton could be extracted from 8½ tons of beet-root, the Continental governments found themselves paying heavy bounties; and yet each was loath to change the standard adopted by law, for fear of giving an advantage to the sugar producers of other countries. The amount of the French bounties in 1887 was estimated at 76,000,000 francs. In Germany the yield of the sugar tax fell from 48,000,000 marks in 1876 to 27,000,000 marks in 1888. The powers taking part in the conference agreed to postpone the date when the convention should go into operation till Sept. 1, 1891, chiefly for the purpose of enabling the French Government to overcome the resistance of the sugar producers.

The German Government, which had supported the efforts of Great Britain to secure the suppression of bounties, had a law enacted to carry out the provisions of the convention. When the English Cabinet, which had been the prime mover in the whole matter and made extraordinary efforts to induce other governments to agree to the convention, brought in a bill to give effect to its provisions it encountered an opposition of unexpected strength that proceeded from the Liberals and from the industrial interests that would be unfavorably affected, and spread among the general public in consequence of representations of the Gladstonians that the price of sugar would be increased by a penny a pound at least. The West Indian planters were represented as deserving no assistance because they adhered to antiquated and wasteful methods, whereas in Demerara, where rational methods had been pursued, the production increased from 80,119 tons in 1875 to 111,885 tons. The colonies could not supply the demand, and the manufacturers of confectionery, who use 150,000 tons and employ 75,000 laborers, would be compelled to give up their business that had been developed under the stimulus of cheap sugar. The Liberals in Parliament argued that the proposed prohibition of imports from bounty-paying countries was contrary to the principles of free trade, and that it was a violation of the most-favored-nation principle, and would involve England in disputes and lead to reclamations especially from France and the United States. To this the ministers replied that the United States Government are estopped by their own interpretation of the most-favored-nation clause, and moreover that they pay no bounty on sugar exports, and that at the first sugar conference the French representatives moved that a clause should be inserted excluding special arrangements in regard to sugar from the operation of the most-favored-nation clause. The introduction of the measure caused considerable irritation in France, where the sugar producers were ready to bring pressure on their Government to induce it to make reprisals. The Government, notwithstanding the leading part that it had taken in negotiating the convention, when it was seen

that many Liberal Unionists would vote against the bill, treated its acceptance or rejection as a matter of indifference and one that could not be made a question of confidence. Finally the Cabinet concluded to postpone the decision of the question for a year, although a declaration annexed to the convention provides for the assembling eight months after the signing of the convention of a special commission to examine the measures taken by the several powers for bringing the convention into force. The main object of the bill that was introduced into Parliament by Baron de Worms on April 11 was to give effect to the penal clause of the convention, the boycotting clause, as it was called by the opponents of the bill. This clause provides that sugar and other saccharine products coming from countries that maintain a system of open or disguised bounties shall either be subjected to countervailing duties greater than the amount of the bounties, or their importation be prohibited altogether, as was proposed in the bill.

Dependencies.—The aggregate area of the British colonies and dependencies is nearly 9,600,000 square miles, and their total population more than 275,500,000. The fortress and naval station of Gibraltar, which commands the entrance to the Mediterranean Sea, with a civil population in 1888 of 24,467 and a garrison of 6,003 British soldiers, pays its own expenses by means of port dues, rents, and excise duties. The revenue for 1887 was £55,517. The islands of Heligoland in the North Sea, 25 miles from the mouth of the Elbe, are inhabited by about 2,000 people, and in the summer season are visited by more than 12,000. The revenue from import duties, the bathing establishment, and a property tax was £8,820 in 1887. The islands form a rendezvous for the English fishing fleet in the North Sea. Malta, a colony possessing representative government, with an area of 117 square miles and 160,423 inhabitants in 1888, is an important naval and military station. Of the population 2,091 were English and 1,096 foreigners. The British garrison numbered 5,930. The revenue in 1887 was £219,185, and the expenditure £239,187.

Cyprus is an island in the Levant, 41 miles from the coast of Syria, which still forms a part of the Turkish Empire in name, though transferred to British administration in 1878. The area is 3,584 square miles, and the population in 1881 was 186,173, of whom 137,631 belonged to the Orthodox Greek Church and 45,458 were Mohammedans. The chief exports are wines, carobs, cotton, raisins, silk-cocoons, wool, and grain. The total value of the imports in 1887-'88 was £356,375, and of the exports £201,266. The revenue in 1887-'88 was £145,443, and the expenditure £113,325, exclusive of the annual tribute of £92,800 payable to Turkey. The salaries paid in 1887-'88 amounted to £66,498. Parliament voted a grant in aid of £18,000 on account of the deficit of the preceding year. The British administration has been so much more expensive and less efficient than the Turkish that the people are becoming annually more impoverished and are sinking into serfdom, while all the land is falling into the hands of the money-lenders. They have often appealed to the British Government, but nothing has

been done for their relief. In May, 1889, a deputation, consisting of the archbishop and three members of the assembly, went to England to lay their grievances before the Government. The employment of British officials makes the taxes £75,000 a year heavier than under Turkish rule. The administration of the police is in the hands of incapable persons, and as a consequence crimes and deeds of violence have become much more common than formerly. The island is in pressing need of irrigation canals and of roads. Many of the inhabitants, after losing their farms, have settled on the neighboring mainland. Taxes, which amount to one fifth of the income of the islanders, can only be collected by selling the movable property even of farmers who formerly were prosperous. The Cypriote deputation suggested in the way of remedies that administrative economies should be effected by lowering the salaries of the foreign officials and reducing their number; that the tribute to the Porte should be done away with by raising a loan guaranteed by the British Government; and that a special agricultural department should be created and an agricultural bank established to make advances to the peasants on easier terms than they can obtain from the usurers. The report of the Chief Justice for 1887-'88 shows an increase of 48 per cent. in crimes of violence over 1886-'87, when the figures showed an advance of 78 per cent. over those of 1885-'86. In the season of 1887-'88 there was a severe drought and almost an entire failure of the grain crops, causing much suffering from hunger. Large numbers of animals were sent out of the island to be sold for what they would bring, because there was no fodder. The Government imported a large quantity of food for the people.

Aden, an important coaling station on the Arabian coast, about 100 miles east of Bab-el-Mandeb, is administered under the direction of the Bombay Government. Exclusive of the island of Perim, the area of the district of Aden, a rocky peninsular, is 75 square miles, and the population is 34,711. The Somali coast protectorate opposite is administered by the political resident of Aden. It extends from 43° 15' east longitude around Cape Guardafui as far south as Ras Hafun. The chief port is Berbera, from which are exported coffee, gums, hides, sheep, and cattle. The Kuria Muria islands, off the Arabian coast, and the island of Socotra, off the coast of Africa, having an area of 3,000 square miles and 4,000 population, are also attached to Aden. The chief product of Socotra is aloes. It was formally annexed in 1886.

British North Borneo is a territory 31,106 square miles in extent, which was acquired by purchase from the Sultans of Brunei and Sulu in 1877, by Alfred Dent and Baron Overbeck. The British North Borneo Company was organized, and in 1881 a royal charter was granted authorizing it to acquire and exercise rights of sovereignty under the supervision of the Imperial Government, which in 1889 extended the protection of the Crown over the territory, which had been increased in 1884 by the province of Dent in the south. The population is about 175,000, consisting of Mohammedan settlers on the coast, Chinese traders, laborers, and artisans, and native

tribes in the interior. The imports for the first half of 1889 amounted to \$536,442 and the exports to \$198,340, being an increase of 43 and 16 per cent. respectively over the corresponding period of 1888. The export of gutta-percha has decreased, while India-rubber has increased, and rattans, birds' nests, and seed pearls show great improvement. The staple export is timber, which shows an increase notwithstanding a greatly augmented local demand. There were 5,015 immigrants in the first six months of 1889, of whom 2,675 were Chinese and 2,112 Malays. The number of emigrants was 1,125. In 1888 a demand for land arose for tobacco plantations when it was found to be adapted for the cultivation of the commercially valuable Sumatra variety. The North Borneo Company has engaged in this culture, and there are 20 subsidiary companies employing Chinese labor in growing tobacco. Sago is also cultivated. The receipts of the company for 1888 amounted to £63,125, including £37,995 from sales of land. The expenditures were £21,494 less than the total receipts, but if the land sales are reckoned as capital and not as revenue, according to the original purpose of the company, there was a deficit of £16,494 in the year's accounts. The sources of revenue are, besides land sales, opium, liquor, and gambling, farms, birds' nests, stamps, licenses, import duties, royalties, etc. In 1888 and 1889 the expenditure was increased by a warlike expedition, which added much valuable cultivated land to the company's possessions. The Pangeran Shabander, a Malay chief, whose territory was surrounded by that of the British North Borneo Company, claimed that it extended from the Padas Besar to the Padas Kliao, which are two large rivers that flow into the sea in the neighborhood of the island of Labuan. The company asserted that it was only over the basin of the Padas Damit, a smaller stream between the other two, that he had authority. The Sultan of Brunei, the Pangeran's suzerain, acknowledged the justice of the company's claim, for he had granted the part of the Pangeran's dominion that was in controversy to the company in 1884; but he refused to enforce his decision, and the company, rather than go to war with the Pangeran, left him in undisturbed possession of the disputed territory. The Pangeran was considered a bad neighbor who gave asylum to escaped criminals, and it was suspected that the Sarawak authorities, desiring the failure of the North Borneo Company, encouraged him in his insolent and annoying conduct. When one of the company's tax-collectors was killed in 1888, his brother, Si Patek, was accused of the crime. On the refusal of the Pangeran to deliver up the murderer to the company or to the Sultan for trial, the Governor of the North Borneo territory, Charles V. Creagh, sent an expedition up the Padas Damit, consisting of a force of Sikhs that was recruited for the purpose at Singapore. The Pangeran's principal fort at Gela was captured, with a loss of six men, early in February, 1889, and an attack was in preparation on a second fort when Shabander asked the intervention of the Rajah of Sarawak and the British Governor of Labuan, who is consul-general to Brunei. At the intervention of the consul-general an armistice was granted, and Shabander

went to Brunei and thence to Labuan, where he met Governor Creagh, and signed a treaty ceding all his territory to the company and agreeing to go away forever in return for an annuity of \$2,130 per annum. The company's flag was hoisted at Padas Damit on March 23, and the new rule was accepted by the natives without any signs of dissatisfaction. The Pangeran, who was present, represented that many of the people were addicted to incantations and exorcisms, and suggested that such practices be suppressed. The governor declined to follow this perfidious counsel, replying that in British colonies it was not usual to interfere with superstitious customs so long as they caused no injury to any part of the community.

Labuan, an island having an area of 30½ square miles, about 6 miles from the northwest coast of Borneo, has been British territory since 1846. The population, consisting mostly of Malays from Borneo, is 6,298. It is a depot for the trade in sago, gutta-percha, rubber, wax, and other products of Borneo and other islands, which are forwarded from Labuan to Singapore. The exports in 1887 amounted to £86,990. The revenue was £4,167 and the expenditure £4,201. In 1889 the administration of Labuan was committed to the officials of the North Borneo company.

Sarawak is a native state on the island of Borneo that was established in 1840 by Sir James Brooke, who governed it under the title of Rajah, and was succeeded in 1868 by his nephew Charles Johnson Brooke. It was declared a British protectorate in 1888, at the same time with the sultanate of Brunei. The area is about 35,000 square miles, and the population 300,000. The products are similar to those of North Borneo. Coal is found in abundance, and gold, silver, and other metals are found. The revenue is about \$280,000, and the imports and exports \$1,500,000 each. In 1889 the Ghee Hin, a Chinese secret society that is very numerous and powerful in Malay countries, threatened to make trouble for the authorities, and Rajah Brooke, fearing an insurrection of Chinese, like that which in 1857 compelled his uncle to flee for a time from the country, arrested and tried the conspirators, and condemned them to severe punishments.

The Straits Settlements, comprising Singapore, Penang, with Province Wellesley, and Malacca, formerly attached to the Government of India, have been administered since 1867 as a Crown colony. The Cocos Islands were annexed to the Straits Settlements in 1886, and Christmas Island in 1888. Province Wellesley is a strip of coast on the western side of the Malayan Peninsula. The small island of Pulau Pangkor, with a small strip on the opposite shore, has been declared British territory, the whole being known as the Dingdingo. The area of the island of Singapore is 206 square miles; of the island of Penang, 107 square miles; of Malacca, extending about 42 miles along the western coast of the peninsula, about 600 square miles. The population of Singapore in 1881 was 139,439, of whom 2,769 were whites; of Penang, 189,923, including 674 whites; of Malacca, 93,539, including 40 whites. Of the total colored population of the Straits Settlements 174,392 were Malays, 174,327 Chinese, and 93,579 natives of India.

The native states of Perak, Selangor, Sungei Ujong, Jelebu, Johore, the Negri Sembilan group of small states in the interior, and since 1888 Pahang, together covering a large part of the peninsula, are under British protection. The area of Perak is 7,950 square miles, population 179,590; the area of Selangor 3,000 square miles, population 120,000; the area of Sungei Ujong 660 square miles, population 14,000; the area of Jelebu and the Negri Sembilan is 2,000; of Johore, 8,000; and of Pahang, 10,000 square miles. The principal wealth of these states lies in their tin mines, which are largely leased and worked by Chinamen. There are also rich gold mines in some of them. The country is very fertile, and well adapted for coffee and cinchona culture on the elevated spots and of rice in the lowlands. In Perak, Selangor, and Sungei Ujong the administration is largely carried on by a British resident and his staff of European officials. Jelebu is under the control of the Sungei Ujong administration. The administration of the small states known as the Sri Menanti Confederacy is under the control of a British superintendent. The sultans of Johore and Pahang, who have only recently accepted a protectorate, have confided their foreign relations to the direction of the British Government, and are reforming their despotic and benighted systems of government under the advice of English political agents. The revenue of the Straits Settlements in 1887 was £689,371, and the expenditure £629,070. Perak in the same year raised a revenue of £327,435, and expended £277,795; the revenue of Selangor was £206,740, and the expenditure £158,730; the revenue of Sungei Ujong, was £25,353, and the expenditure £23,598. The revenue of these states is mainly derived from the export of tin. Selangor has a debt of £57,000, and Sungei Ujong and Negri Sembilan have likewise contracted small debts. The revenue and population of the native states is rapidly increasing, and liberal sums are expended on sewerage, roads, bridges, and other public improvements. The revenue of Perak in 1888 exceeded \$2,000,000, and that of Selangor was \$1,400,000. The net immigration into Perak in the same year was 29,129, and into Selangor 26,000. There are railroads in profitable operation in both states, and new ones are building. Laws have been made to preserve the forests from destruction. The exhaustive culture of gambier and tapioca is giving way to other products. Agriculture is advancing, notwithstanding the preference of the Chinese for mining, trading, and other more lucrative employments. Exports have decreased in value, owing to the low price of tin, but the quantity has increased. The Chinese secret societies, which often become a menace to good order where they are allowed to develop, have been subjected in the native states to stringent prohibitive measures, such as exist in the Spanish and Dutch colonies, in Siam, and elsewhere. Frequent disturbances have been caused by these societies, and in 1889 the Legislative Council of Singapore was about to pass a bill for the suppression of all Chinese secret societies, but postponed its consideration by order of the Colonial Office. The members of registered secret societies in Singapore number about 70,000 and

in Penang 100,000. The imports into the Straits Settlements in 1887 amounted in value to \$142,300,000, and the exports to \$120,300,000. The chief articles of import and export for which Singapore is a market are opium, rice, tea, coffee, tobacco, hardware, copper, copra, gambier, pepper, gum, rattans, tin, sago, tapioca, cigars. The trade is largest with Netherlands, India, Great Britain, the Malay Peninsula, and Hong-Kong, after which come Siam, British India, British Burmah, China, French Cochinchina, the United States, and Germany. The number of vessels entered at the ports of the colony in 1887 was 7,075, of 4,312,901 tons, and the number cleared was 6,916, of 4,042,105 tons, exclusive of native craft, numbering 11,664, of 302,427 tons. Batteries for the defense of Singapore harbor were completed in 1888. The British garrison at Singapore, including two companies of infantry at Penang, in 1889 numbered 1,818 men, besides whom there was a small force of Sikh gunners.

Ceylon is a colony having a representative form of government, the various races and classes being represented by 6 of the 15 members of the Legislative Council. The area of the island is 25,364 square miles, and the population was in 1881, as determined by the census, 2,759,738, consisting of 1,469,553 males and 1,290,185 females. The population comprised 4,836 Europeans, 17,866 Eurasians and descendants of Dutch colonists, 1,846,614 indigenous Singhalese, 687,248 Tamils, 184,542 Moormen or descendants of Arabs, 8,895 Malays, 2,228 Veddahs, and 7,489 others. Of the Europeans 4,074 were British. The military population was not included in the census. In 1889 the British garrison numbered 1,331 men. The principal religious creeds had the following numbers of adherents in 1881: Buddhist, 1,698,070; Hindus, 493,630; Mohammedans, 197,775; Christians, 147,977. The revenue of the colonial government in 1888 was estimated at 13,784,150 rupees. The imports in 1887 were valued at a total of 50,312,136 rupees, and the exports at 40,018,869 rupees. The principal exports were coffee, tea, cinchona, cacao, plumbago, cocoa-nut products, cinnamon, and areca nuts. There were at the last returns 628,304 acres planted to cocoa-nut palm, 32,663 acres devoted to Palmyra, areca, and other palms, 743,023 acres under rice and cereals, 104,108 acres under coffee, 199,647 acres under tea, and 3,462 acres under cinchona. The production of coffee has been to a large extent abandoned, owing to the destruction of the plantations by disease. The export has fallen off from 824,509 hundred-weight in 1879 to 178,490 hundred-weight in 1887. The culture of tea, cinchona, cacao, and cocoa-nut palms, on the other hand, has been growing in recent years. There were 181 miles of railroad completed in 1887, and 325 miles were projected or in process of construction.

On the east coast of Africa a strip of the Zanzibar coast, 150 miles long, extending from Wanga, the northern limit of the German sphere of influence, to Tana river, was in 1888 ceded by the Sultan for the period of fifty years to the British East Africa Company. The company claims the interior between the German possessions and Tana river and as far inland as Victoria Nyanza, by virtue of treaties concluded

with native chiefs, the total area being 70,000 square miles. It has received a charter from the British Government (see ZANZIBAR).

The island of Mauritius, 500 miles east of Madagascar, has a Legislative Council in which 10 of the 27 members are elective, in accordance with a change in the Constitution made in 1885. The Governor is Sir John Pope Hennessy, who has held the appointment since 1882. Under the same administration are Rodrigues, Diego Garcia, and the Seychelles. Mauritius has an area of 708 square miles. The population on Jan. 1, 1888, was 368,163, comprising 207,481 males and 160,682 females. Of the total 251,342 consisted of Indians, and the remainder included whites, native Africans, Chinese, and mixed races. There were 3,945 Chinese. The immigration in 1887 was 264, and the emigration 1,950. Port Louis, the capital, had a population of 61,963 in 1887. The revenue of the colony in 1887 was 6,858,919 rupees, and the expenditure 7,985,909 rupees. The chief product is sugar, which was represented by 22,969,998 rupees out of the total value of exports in 1887, amounting to 25,998,056 rupees. The minor exports are rum, vanilla, aloe fiber, and cocoa-nut oil. The total value of the imports was 23,434,100 rupees. The trade is chiefly with British South Africa, India, and Australia. The total commerce has contracted nearly 30 per cent. in four years. The Seychelles had in 1880 a population of 15,752, and exported in 1887, cocoa-nut oil, soap, vanilla, tortoise-shell, etc., of the total value of 621,789 rupees. The population of Rodrigues was 1,826.

The British Government has annexed recently several small islands and island groups in the Pacific. The nine islands constituting the Cook group, which includes the Hervey Islands, were proclaimed English territory and formally occupied in November, 1888. The islands of Rurutua, and Rimitara, forming part of the Austral group, were promised a British protectorate at the solicitation of the inhabitants, who are Protestant Christians, their desire having been communicated to the commander of the naval forces by the rulers of the two islands, who visited Raratonga, the chief island of the Cook group, for that purpose. At the protest of the French Government, to which Tubuai and Raiavai, the larger islands of the Austral group belong, England refrained from her purpose, and the islands were occupied by France. On April 22 the British flag was hoisted over the Suvarrow Islands, a small group in the South Pacific lying northwest of the Cook Islands in 13° south latitude and 163° west longitude. The group consists of three wooded islands connected by a reef, and affording an excellent anchoring place. In August Humphrey and Rierson islands, in the Manihiki group, to the north of the Cook Islands, were taken possession of. These annexations were made chiefly with reference to utilization of the islands in connection with a proposed cable between Vancouver and Australia.

On the west coast of Africa England has the colonies of Sierra Leone, Gambia, Lagos, and the Gold Coast. Sierra Leone includes the peninsula of that name, the island Sherbro, and other territory adjoining, its total area being 468 square miles, and the population 60,546, of

whom 60 are whites. Freetown, the capital, with 21,930 inhabitants, is the headquarters of the British military forces in western Africa, which numbered 676 soldiers in 1889. The revenue derived chiefly from customs, was £60,637 in 1887, and the expenditure £58,334. The chief exports are seeds, nuts, palm oil and kernels, hides, and ginger. The total imports in 1887 were valued at £308,039, and the exports at £333,517.

Gambia was constituted into an independent colony in December, 1888. It has an area of 41 square miles and a population of 14,150, of whom 41 are whites. There are 5,300 Mohammedans and 2,385 Christians, mostly Methodists. The export trade is confined chiefly to ground-nuts, minor articles being hides, beeswax, and India-rubber. The imports in 1887 amounted to £80,800, and the exports to £86,933. The revenue collected in 1887 was £13,453, and the expenditures of the administration were £23,922.

Lagos, an island on the Slave Coast, was detached from the colony of the Gold Coast in 1886. The British protectorate extends along the coast of the Gulf of Guinea from 2° to 6° of east longitude. The area of Lagos is 1,071 square miles. The population was 87,165 in 1883, including 117 whites. The Christians numbered 9,641. The revenue in 1887 was £51,346, and the expenditure £78,610. The principal articles of export are palm oil and palm kernels, with some ivory. The imports in 1887 had a total value of £415,343, and the exports amounted to £491,469. The colony maintains a military force of Houssas and Yorubas at a cost of £12,000 per annum.

The Gold Coast extends along the coast of the Gulf of Guinea about 350 miles and 50 miles inland, the total area claimed being about 15,000 square miles, not including the protectorate, which has an extent of 14,400 square miles more. The population of the colony is 1,406,450. The revenue in 1887 was £122,351, and the expenditure £139,443. The leading exports are gold, palm oil and kernels, and gum. The imports of all the West African colonies are cotton cloth, rum, gin, tobacco, and provisions. The total value of the imports in 1887 was £363,716, of the exports £372,446. The chief difficulty in the way of the agricultural development of the colonies is the lack of labor. The introduction of Chinese laborers is in contemplation. The natives of the coast will not work more than is necessary to supply them with food. The Kroomen, who are the only industrious race of Africans, have been introduced by Governor Maloney, but they are difficult to obtain in sufficient numbers. The cocoa-nut trees might yield a good trade, but the fruit is wasted through lack of enterprise, and nothing is done with the fiber. The coffee shrub grows luxuriantly, but this product, as well as cocoa, is entirely neglected by the people, who see no necessity for having other exports besides palm oil and kernels. The trade in Calabar beans is dying out, and also that in rubber, which was once very promising, and in ginger, which grows with the greatest luxuriance. Monkey skins and porcupine quills are among the minor exports. The annual export of ivory is about 14,000 pounds, the value about £4,000. The average annual export of

gold dust for five years has been 20,258 ounces. Attempts are being made to work the gold mines, although of capital and labor it is alike difficult to obtain as much as is required. Quartz mines have at various times been opened under the superintendence of white men; but either the machinery failed to reach the spot or the superintendents died, and the enterprise has been given up. Within a short time, however, shafts have been sunk and stamp mills erected at several places on the Ancobra river, and mining is regularly carried on under European superintendence. The yield of gold per ton is sufficient to pay a profit on the outlay.

The four West African colonies have been stimulated to fresh exertions by the colonial and commercial enterprise of the Germans, and especially by the endeavors of the French to extend their influence over the interior. In order to forestall them and prevent their surrounding the British colonies, shutting them out from the interior and ruining their trade, Governor Alfred Maloney, of Lagos, made every effort to bring under British influence and protection the Yorubas and other tribes. He has succeeded in his purpose, preserving for Lagos a free route to the interior and the commerce of the native markets, and by treaties with the chiefs has annexed the Yoruba country and obtained free access to and beyond the Kong mountains and up to the sphere of the Royal Niger Company. From their stations on the slave coast a French agent named Viard visited Abeokuta, behind Lagos, and in the name of the French Government made a treaty with the rulers. The French Government, on being interrogated, said that it intended to make no use of the political clauses of the treaty. Although Abeokuta contributes two fifths of the revenue of Lagos, no treaty has been made with that country since 1852 by British officials. The encroachments of the French from behind have destroyed the possibility of the expansion of Gambia and Sierra Leone, and have curtailed their revenues. Warned by this, the Governor of Lagos exerted himself to establish a prior claim over Yoruba, which with its 2,500,000 inhabitants, furnishes nearly all the trade of Lagos. The Governor of Senegal in extending French possessions occupied territories bordering on the river Gambia which the English claimed as a part of their dependencies. In deference to British representations, the French Government checked the progress of their military occupations in order that the question of boundaries and spheres of influence might be discussed diplomatically.

In 1888 a young official named Dalrymple was sent with a force of Houssas to the district of Tavieve to endeavor to put a stop to feuds between the natives. Though cautioned not to use force unless compelled to, he reported on reaching the district that unless he was allowed to punish the people the expedition would result in failure, and on his own responsibility he arrested several natives, one of whom, on his refusal to go, was shot dead, probably by Dalrymple. A fight ensued, in which Dalrymple and some of his soldiers were slain, and many more on the other side. Assistant Inspector Akers with 63 Houssa soldiers was sent to punish the natives, whom they attacked in their villages

and pursued into the bush, shooting down 167, while about 600 more, including women and children, perished from starvation and exposure. The chief and principal men of the tribe were brought to Accra to be tried for the killing of Dalrymple. The judge refused to entertain a charge of conspiracy to murder and the attorney-general refused to prosecute them for murder, whereupon the Governor called together the Legislative Council, which passed a special ordinance empowering him to imprison them for life without trial.

Through the medium of the Royal Niger Company the English are endeavoring to outstrip the French in the race for the control of the Western Soudan. From the boundary of Lagos near the river Benin to the German colony of Cameroons that ends at Rio del Rey the entire coast, including the delta of the Niger is under British protection, and is administered by a consular staff in accordance with an order in council issued in 1885. This coast constitutes the protectorate of the Oil rivers, behind which lie the territories of the Royal Niger Company, a limited joint-stock company controlling the trade and navigation of the Niger and Binué rivers under the authority of a charter granted on July 10, 1886, extending the protection of the British Government to the territories of the company. These territories are bounded on the east by the German sphere of influence. The population of the Niger protectorate is believed to be 12,000,000, of whom more than two thirds are Mohammedans. The total trade with Great Britain amounts to about £1,200,000, of which £750,000 comes from the Oil rivers and £450,000 from the upper Niger and the Binué. The principal articles of export are palm oil, palm kernels, India-rubber, shea-butter, ivory, ebony, camwood, indigo, hides, timber, gum, and cocoa. The imports are spirits, gunpowder, cotton prints, firearms, hardware, soap, pottery, fancy articles, tobacco, and rice. There is an export duty on palm oil and kernels in the Oil river territory. The Royal Niger Company collects both import and export duties. British as well as German merchants complain that since it is a trading company the right to impose duties gives it the power of excluding all competition, and that it uses this power in the fullest measure. As soon as the international convention was concluded in Berlin in 1885, securing perfect freedom of trade on the Niger, the National Africa Company, afterward the Royal Niger Company, which in 1881 had bought up the other English companies trading on the Niger, set itself to render the convention a dead letter as far as that river was concerned by shutting out the threatened German competition and securing for itself a monopoly of the trade. An expedition under Joseph Thomson in 1885 visited the Sultans of Sokoto and Gando, and reported the conclusion of treaties with them and the riverine chiefs, securing to the company the exclusive right to trade, acquire land, and work mines in their territories. The British Government then endowed the company with political jurisdiction over the region thus acquired, including the right to levy duties. By those treaties the company's sphere of influence was extended to Sago, on the middle Niger, and

to Yola, on the upper Benué. The line delimiting the German sphere of influence was, on the strength of these treaties, drawn from Rio del Rey to Yola. German traders have been unable to acquire sites for factories on the rivers, and in 1888 one of them who entered into negotiations with the natives was expelled from the Niger protectorate. The complaints were so many that the German Government sent its consul in Lagos, Herr von Puttkamer, to the Niger to investigate the condition of things there. The English Government likewise dispatched an official on a tour of inspection. Herr von Puttkamer is said to have had difficulties thrown in his way, the inhabitants being forbidden to communicate with him or to sell him food. There was a report that he was made a prisoner by the natives at the instigation of an official of the company, and diplomatic representations were resorted to by his Government to secure for him better treatment. Most of the treaties, according to the German report, are fictitious, as the Mohammedan rulers have from the first refused to enter into relations with the company. English as well as German merchants complain that they are subjected to annoying restrictions, that they are allowed to trade only at certain places, that their vessels are stopped and the cargoes confiscated, and that every possible obstacle is placed in the way of free trade, in addition to the imposts that have been raised to such a height as to destroy all profits for outsiders. The natives are heavily taxed, yet they derive no benefit from the jurisdiction of the company, which does not pretend to govern the country. The leader of an expedition sent by the company into the interior in 1889 had a difficulty with some of his native followers, in consequence of which several of them were killed.

King Ja Ja, of Opobo, in the Oil river territory, was accused of breaking a treaty concluded in 1884, by obstructing the English consul who visited the upper river for the purpose of establishing freedom of trade. The chief was inveigled on board a steamer and taken away to Accra on the Gold Coast, where he was put through the forms of a trial, and sentenced to be transported for the period of five years. He was taken in May, 1889, to the Windward Islands, and given a residence on the island of St. Vincent, where he was joined by his children and one of his wives. The people of the Opobo river were offended at the removal of their ruler and at the measures taken to abolish their trading privileges, which they resisted by force. Admiral Wells, on the ship "Raleigh," blockaded the mouth of the Opobo, and ordered the chiefs to deliver up their arms and war canoes and pay a fine, and to remove the boom that they had placed across one of the branches of the river. Some of the chiefs complied, and the blockade was raised when the obstructions were removed.

In the South Atlantic the island of Ascension, 35 square miles in extent, with 200 inhabitants, is used as a naval station, and is visited by whalers. About 800 miles from Ascension and 1,200 from the coast of Africa is the island of St. Helena, formerly valuable as a port of call on the cape route to India. The area of the island is 47 square miles, and its population—which is constantly decreasing—was 5,085 in 1883, of

whom 4,315 were natives. The revenue in 1887 was £11,043; expenditure, £11,369. There is a valuable whale-fishery managed by Americans.

On the other side of the Atlantic, 30 miles east of the Straits of Magellan, are the Falkland Islands, 6,500 square miles in extent, consisting of East and West Falkland, and about 100 small islands. The population, numbering about 1,800, of whom nearly two thirds are males, is composed of British colonists who follow sheep-raising as their chief industry. The revenue in 1887 was £8,963, and the expenditure £9,128. The imports amounted to £66,785, and the exports, consisting of wool, frozen meat, live sheep to Chili, skins, and tallow, were valued at £107,995. In 1888 the shipments of frozen mutton were discontinued and those of live sheep almost ceased, causing a considerable decline in the total value of exports.

The Bermudas are a group of 360 small islands in the Atlantic Ocean, 580 miles east of the coast of North Carolina. Only 18 or 20 of the islands are inhabited. The total area is 24 square miles. The population was estimated in 1889 at 15,534, of whom, 9,379 are colored. The military force maintained there in 1888-'89 was 1,407. The revenue in 1887 was £27,401, and the expenditure £28,731. For 1888-'89 the estimated revenue was £29,199, and the expenditure £31,367. The revenue from customs was estimated for that year at £23,700. There was a public debt in 1889 of £8,614. The chief items of expenditure are salaries, public works, ecclesiastical, and education. The Imperial Government in 1888 appropriated a grant in aid of £2,200. The present Governor is Lieutenant-General Thomas L. J. Galway. He is assisted by an Executive Council, a Legislative Council of 10 members nominated by the Crown, and a House of Assembly of 36 elected members. The Bermudas are a favorite winter resort for Americans. The food supplies are imported from the United States and Canada, and all the exports, consisting of onions, beets, potatoes, tomatoes, bananas, etc., go to those countries. The value of the imports in 1887 was £264,920, and of the exports, £88,921. Both imports and exports showed an advance in 1888, the latter being valued at £99,650, the increase being due mainly to the larger amounts obtained for onions and lily bulbs.

British Guiana comprises three settlements that are named from the principal rivers—Demerara, Essequibo, and Berbice. The boundary between Guiana and Venezuela has been in dispute. The area of the colony is 109,000 square miles. The population in 1887 was 277,038. The revenue in 1887 was £463,870, and the expenditure £489,214. For 1888 the revenue was estimated at £502,083, and the expenditure at £501,252. The public debt was £446,700 in 1888. The chief product is sugar, in addition to which and the by-products rum and molasses, timber, coffee, and cocoa, are exported. The value of the imports—chief of which are flour, and provisions, coal, machinery, and fertilizers—was £1,603,175 in 1887, and that of the exports was £2,190,592.

Trinidad, another sugar colony, is a large island north of the mouths of the Orinoco. The area is 1,754 square miles. The population in 1887 was estimated at 183,486. Coolie labor is

largely used. There were 1,860 immigrants brought from India in 1888, while 435 returned, having served their terms. Many renew their contracts after their time has expired, and others return to settle after having gone home. Although the exports of sugar have greatly declined in recent years, other valuable crops have been introduced. The export of sugar in 1888 amounted to £724,163, as against £800,595 in 1887; but the total exports rose from £1,870,612 to £2,132,761. The cocoa crop was an excellent one, the export being valued at £611,876, as against £354,420 in 1887. Among other exports the largest were asphalt, bitters, cocoa-nuts, and molasses. The fruit trade of Trinidad and Tobago with New York has grown up recently by means of a direct line of steamers, and will be increased when railroad communication shall be established with the fertile districts of the interior. Tobago, with an area of 114 square miles and 19,937 inhabitants, was annexed to Trinidad in 1888. The revenue of the Colonial Government in 1888 amounted to £480,522, which was £17,000 more than the expenditure, although the latter was £39,000 in excess of that of 1887. Trinidad has a debt of £552,680.

The Windward Islands have a total area of 623 square miles. The population of Grenada in 1888 was 48,346; of St. Vincent, 46,776; of St. Lucia, 42,300. The Grenadines are attached half of them to St. Vincent, and half to Grenada. The revenue of St. Lucia in 1887 was £39,966; of St. Vincent, £29,899; of Grenada, £46,743. The exports of St. Vincent, of which sugar and arrowroot are the leading articles, were valued at £85,770; Grenada's exports were valued at £217,749, cocoa figuring for £185,412; and the total for St. Lucia was £117,743.

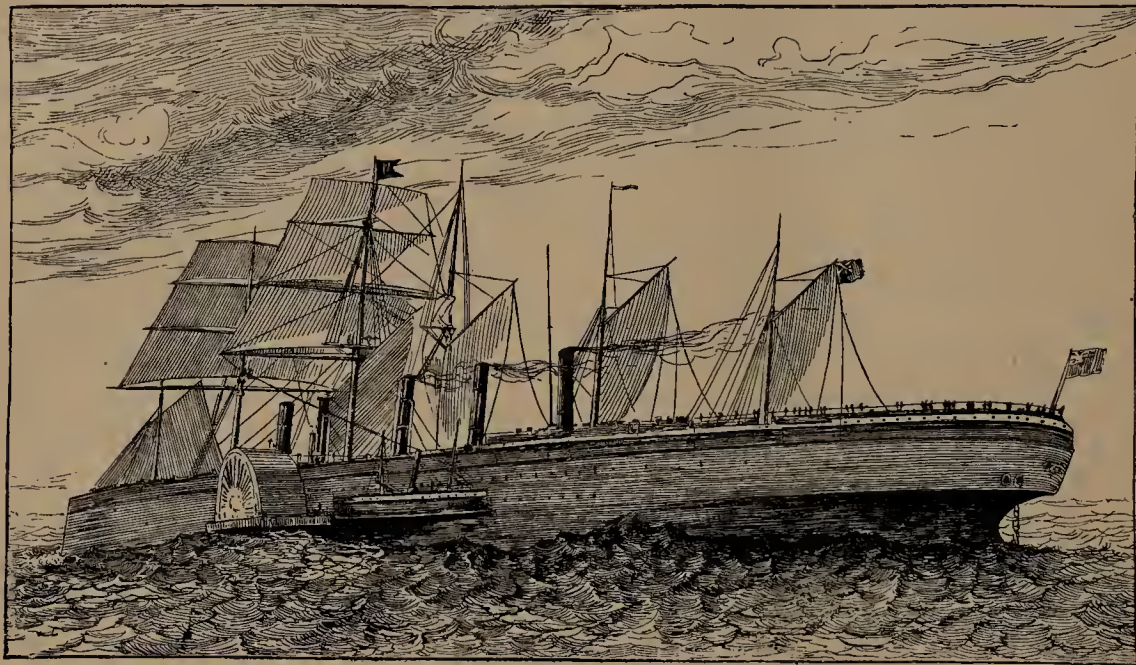
The Leeward Islands have a total area of 479 square miles. Their population in 1884 was 122,769. The revenue of St. Christopher, Nevis, and Anguilla amounted to £38,702 in 1887; of Antigua, £44,032; of Montserrat, £5,804; of Domenica, £15,702; of the Virgin Islands, £1,745. The exports of the Virgin Islands were £4,514 in value; of St. Kitt's and Nevis, £233,821; of Antigua, £147,000; of Montserrat, principally lime juice, £25,236; of Domenica, £48,105. A force of 1,113 British soldiers was stationed in 1889 on the Windward and Leeward Islands.

Barbadoes was administered by the Governor of the Windward Islands till 1885. Its area is 166 square miles. The population in 1881 was 173,522, of whom 15,672 were whites. The revenue in 1887 was 163,489, and the expenditure £154,610. The exports had a total value of £1,063,398, the export of sugar being £703,527, and that of molasses, £138,427.

Jamaica, the largest of the British West India islands, has an area of 4,200, and in 1881 had 580,804 inhabitants, of whom 14,432 were whites, 109,946 colored, 444,186 pure blacks, and the remainder Chinese and coolies. The number of immigrants, mostly East Indian, in 1888 was 13,066, of whom 1,002 were indentured laborers. Turk's Island and Caicos, which are annexed to Jamaica, have an area of 224 square miles and 4,778 inhabitants. The Governor is Sir Henry Arthur Blake. He is assisted by a Privy Council and by a Legislative Assembly, which is partly elective. Kingston, the capital of Jamai-

ca, has about 40,000 inhabitants. The British garrison in 1889 numbered 1,287 troops. The revenue in 1887 was £605,997, and the expenditure £622,527. The revenue in 1888 was sufficient to cover the deficit of the year before and leave a surplus of £30,000. About half the

GREAT EASTERN, the largest ship ever afloat. Isambard K. Brunel, a civil engineer of Portsmouth, England, was her designer, and to him is due the credit of her cellular construction. The ship was built at Millwall, on the Thames, England, by Scott Russell. He designed her



THE GREAT EASTERN AT SEA.

revenue is derived from import duties. The debt is growing larger, and is now over £1,500,000, half of the entire sum having been raised to build railroads. The exports in 1887 amounted to £1,509,010. In 1888 they rose to £1,828,590, the highest figure for nine years, while imports amounted to £1,695,605. The improvement in the export trade is the result of increases in cocoa, cocoa-nuts, coffee, bananas, oranges, ginger, sugar, and logwood. Since 1883 sugar has decreased from 31·7 per cent. of the total exports until it formed in 1888 only 17·3 per cent., while coffee has risen from 7·3 per cent. to 19·3 per cent., and fruit from 10·3 per cent. to 21·2 per cent. In 1881 the trade with Great Britain was 66·5 per cent. of the total commerce of the colony, and from that it has declined to 40·2 per cent., while the share of the United States has grown from 18·9 per cent. in 1881 to 43·2 per cent. in 1888. The inhabitants of Turk's and Caicos islands suffered much from a drought in 1888 and from the effects of a hurricane, which interfered with the salt industry, the main support of the people.

The Bahama Islands, of which 20 are inhabited, have an area of 5,450 square miles and a population of 43,521 persons, of whom about 11,000 are whites. The revenue in 1887 was £45,870, and the expenditure £43,955. The exports in 1887 amounted to £125,464. The sponge fishery was formerly the most important industry. The cultivation of pineapples and other fruits has received much attention, and recently the culture of sisal hemp eclipses every other enterprise, and has attracted foreign capital.

lines, and held himself responsible for her architecture. She was first named the "Leviathan," then "Great Ship," and finally "Great Eastern." Her size was supposed to give her greater immunity from accident than smaller vessels, and it was thought she was to revolutionize the ship-building of the world. Her tonnage, from builder's measurements, was 22,927 tons, and her registered tonnage, including engine space, 18,914. Draught, when laden, 30 feet; light, 20 feet. Length, between perpendiculars, 680 feet; on upper deck, 692 feet. Breadth of beam, 83 feet; including paddle-boxes, 120 feet. Depth at side, 58 feet, or 70 feet to top of bulwarks. Depth of hold, 24 feet. Stowage for cargo, 6,000 tons. Capacity of coal-bunkers, 12,000 tons. Daily consumption of coal—paddles, 123 tons; screw, 180 tons. She had 8 engines and 20 auxiliary engines. Nominal horse-power of screw, 1,600. Horse-power of paddle, 1,000. Indicated horse-power of screw, 4,000. Indicated horse-power of paddle, 2,600. The diameter of the screw cylinder was 7 feet; number of screw cylinders, 4. The diameter of the paddle cylinder, was 6 feet 2 inches; number of paddle cylinders, 4. The pitch of the screw was 37 feet, and it had 4 blades. Its weight was 36 tons. The boilers supplying the paddle engines had a heating surface of 4,800 feet, and those of the screw engines 5,000 square feet. She was built without a keel, and rolled badly. She had 4 decks. The length of the forecastle was 140 feet; height, 8 feet; total length of principal saloons, 400 feet; height of saloon on lower deck, 13 feet 8 inches; height of saloon on upper deck, 12 feet; length

of upper saloon, 70 feet; width, 30 feet. She carried 6,500 yards of sail, and had 5 masts of hollow wrought iron, with iron spars; the shrouds and rigging were of iron-wire rope; the mizzen mast was of wood. The iron masts had mechanical safeguards provided for their removal, should necessity require. She was equipped with 20 large boats and 2 steam launches. The paddle-boxes were 56 feet in diameter, by 13 feet in depth, and had each 30 strokes. She had 5 funnels, each 100 feet high, by 6 feet in diameter. Two of her 10 anchors weighed 10 tons each. The chain cable was a mile long, and each link weighed 50 pounds. The weight of anchor and cables was 253 tons. Her woodwork weighed 2,500 tons; the iron in her hull, 8,000 tons; 3,000,000 rivets held the 30,000 plates, each plate weighing about one third of a ton.

She could accommodate 800 first-class passengers, 2,000 second-class, and 1,200 third-class, with 400 officers and crew; or 5,000 emigrants or troops. The captain conveyed his orders to the different quarters of the ship by an electric telegraph. Her compasses were especially adapted to overcome the attraction of such an immense body of iron. Her greatest speed was $14\frac{1}{2}$ knots an hour, and the greatest run made in any one day was 333 knots. The difficulties that occurred in establishing a steam route to India, *via* the Cape of Good Hope, begun by the Eastern Navigation Company in 1851, brought about her construction. Coal being cheaper in England and coaling stations along the route an extraordinary expense, a vessel was desired with capacity for passengers and cargo, and coal for both outward and return trips. Completely equipped factories for the building of the great ship were begun at the yards in December, 1853, and work upon the vessel was begun May 1, 1854. She was to be finished in a year, but, through unforeseen emergencies, was not ready

for launching until Nov. 3, 1857. Then five attempts were made, and failed. Several workmen were killed; three hydraulic engines, with mighty chains and windlasses, were broken, yet for three months the ship remained obstinately on the ways. The "Leviathan" would not be "drawn out with a hook." She had been built 160 feet from the water, broadside, with the idea of averting any dangers incurred by a sternwise launching of her enormous length. In December, 1857, she had still 107 feet to move. She was successfully floated on Sunday, Jan. 31, 1858, and towed to Deptford, to await the completion of the interior design. The expenses of her launching and construction, largely increased through delays and disasters, were about £730,000, and caused the property of the heavily embarrassed company to be turned over to a new organization in August, and her fittings were continued as rapidly as funds could be found to meet the demands, until the vessel was completed.

A trial trip was attempted on Sept. 8, 1859. Mr. Brunel, whose health was undermined by the long-continued anxieties during her construction, was stricken with paralysis while on board, the day previous, and died a few days later. While the "Great Eastern" was passing Hastings, a steam-cylinder explosion killed seven men, wounded several others, and destroyed the grand saloon to a serious extent, preventing the intended voyage to New York. Lawsuits and repairs deferred a second attempt until June 17, 1860, when she sailed from Southampton, reaching New York on the 28th of that month (11 days out) consuming 2,876 tons of coal. She had 190,000 visitors while in port. But this and succeeding trips occasioned so costly repairs that they were profitless, until, in the winter of 1861, she conveyed some British troops to Canada. She never fulfilled the Indian or Australian designs for which she was created, and there



LAST OF THE GREAT EASTERN.

were few ports that she could enter. She was employed by the Telegraph Construction and Maintenance Company to replace the cable that had parted between Ireland and America. Her passenger accommodations were removed, and three tanks replaced them to hold the new cable, and she sailed from Valencia on this mission in July, 1865. On Aug. 2 the new cable snapped, and after a week of unsuccessful grappling for the sunken cable, the great ship returned to England. She made another, and successful, attempt in July, 1866, with a new cable, and, accompanied by three other vessels, reached Newfoundland on the 27th, and proceeded to Heart's Content. She remained there until the following summer. Then the old cable was grappled for and recovered, and was reunited, Sept. 8, 1866. In 1867 she was refitted, as a speculative venture, to carry visitors to the Paris Exposition from New York to Havre. This proved another profitless scheme, and she was last in port, in New York, consigned to W. T. Coleman & Company, Sept. 9, 1867. In 1868 the tanks were replaced for her renewed service in the employ of the cable company. The staunch integrity of her construction made cable-laying the opportunity of her existence. She afterward laid cables in the Atlantic, the Mediterranean, across the Indian Ocean, in the Red Sea, across the equator to Brazil, and other lines. In 1870 the losses upon her, to date, were computed at £100,000. In 1884 she was degraded to service as a coal-hulk, in the harbor of Gibraltar. In May, 1886, she was taken to the Mersey, where a Liverpool firm, with a capital of £20,000, had her repainted and fitted up for miscellaneous provincial entertainments. They covered her with posters, had conjurors and penny shows, music, dancing, and refreshments, and reaped a large profit, until a fire occurred on board; she was then again without occupation, and was taken to Dublin. She was purchased for £26,000, and while lying there was declared possessed of a Board of Trade certificate, as to the enormous strength of her hulk and general sea-worthiness, which occasioned rumors of the intentions of a steamship company to refit her at a cost of £120,000. From Dublin she was sent to the Clyde, whence a tug took her to Tranmere, as the property of a marine-store dealer, to be broken up in his yards for old iron, derelict only as a source of profit. Had her speed been comparable with her immense size, her history might have been different.

GREECE, a constitutional monarchy in south-eastern Europe. The Constitution of 1864, revised on June 24, 1886, vests the legislative authority in a single chamber of 150 members, elected for four years by universal suffrage. Every candidate must obtain the approval of at least one thirtieth of the voters of his district before his nomination. The Boulé or Legislative Assembly sits annually for not less than three, and not more than six months. Every bill must be discussed and voted three times on separate days. Essential principles of the Constitution can not be reviewed by the Legislature, but the electoral laws and other provisions that are not fundamental are subject to revision after the lapse of ten years. The reigning King is Georgios I, born Dec. 24, 1845, who was elected in 1863,

before his father had succeeded to the throne of Denmark. The heir-apparent is Prince Konstantinos, Duke of Sparta, born Aug. 2, 1868, who married Princess Sophie of Prussia, sister of the German Emperor, on Oct. 27, 1889. The present Cabinet, constituted on May 21, 1886, is composed of the following ministers: President of the Council and Minister of Finance and Minister of War, C. Tricoupis; Minister of Justice, D. S. Voulpiotis; Minister of the Interior *ad interim*, E. Dragoumis; Minister of Worship, and Public Instruction *ad interim*, G. Theotokis; Minister of Foreign Affairs, E. Dragoumis; Minister of Marine, G. Theotokis. P. Manetas, the former Minister of Public Instruction, resigned in the beginning of March, 1889, because the Prime Minister would not sanction his dismissal of the brother of an influential deputy from a post in his department.

Area and Population.—The kingdom has a total area of 64,689 square kilometres. The population, according to the census of 1879 for the old territories and an enumeration made in 1881 for the annexed districts in Thessaly and Epirus, is 1,979,453. The resident population was divided in respect to religion into 1,902,800 Orthodox Greek Christians, 14,677 other Christians, 5,792 Israelites, 24,165 Mohammedans, and 740 of other beliefs. The population of Athens, the political capital, was 107,746 in 1889.

Finances.—The total revenue is estimated in the budget for 1889 at 96,449,453 drachmas, and the expenditure at 95,974,420 drachmas. Customs and internal duties are calculated to yield 30,354,700 drachmas; direct taxes, 21,452,967 drachmas; monopolies, 9,618,000 drachmas; stamps and dues, 14,381,861 drachmas; domains, 3,365,441 drachmas; sales of state property, 4,232,972 drachmas; other sources, 13,043,513 drachmas. The expenditure on the debt is 38,663,636 drachmas; on the army, 17,131,000 drachmas; on the navy, 4,241,486 drachmas; the civil list, 1,212,500 drachmas; pensions and grants, 4,623,664 drachmas; the cost of collecting the revenue, 7,654,200 drachmas; the expenses of the Ministry of Justice, 4,843,730 drachmas; of the Ministry of the Interior, 4,650,870 drachmas; of the Ministry of Worship, 3,106,658 drachmas; of the Ministry of Finance, 1,510,218 drachmas; of the Legislature, 401,658 drachmas; other expenses, 5,718,640 drachmas. These estimates are in paper drachmas, which in 1889 stood at about 20 per cent. below the gold par value. The debt, reduced to gold values, amounted in 1889 to 556,645,046 drachmas, and the interest to 26,967,086 drachmas. This is exclusive of the floating debt and of the new railroad debts. The latter add about 6,000,000 drachmas to the annual interest charge. The floating debt, according to the budget statement, amounts to 121,000,000 drachmas, inclusive of the 14,000,000 drachmas of forced paper currency. Tricoupis has restored the credit of the Government to a remarkable degree, yet in accomplishing this he has exhausted the sources of taxation and sacrificed some of his popularity. The decline of both imports and exports in 1888, as compared with the figures of 1887, is an indication that import duties so high as to encourage smuggling, export duties amounting to 7,000,000 drachmas, and other burden-

some taxes, act as a check upon production and commerce. Such confidence, however, has been won abroad by the brilliant financial administration of the present Premier that French, English, German, and even American capitalists competed for the new railroad loans before the Parisian crisis necessitated the suspension of negotiations.

The French Government is disinclined to make a new commercial treaty with Greece because French wine-growers strongly object to the importation of dried currants, which have been largely used in the manufacture of certain wines. M. Tricoupis, before framing the budget for 1890, proposed to the British Government to abolish the land tax on currants, which yields 4,000,000 drachmas a year, if the English import duties on dried fruits were taken off. This offer was refused, and he decided to remit other taxes bearing upon agriculture. The tax on plowing animals, which ten years ago was substituted for the Turkish system of levying tithes in kind, has been readjusted for the benefit of small land owners, the land tax on exported wine has been remitted, and all taxes have been abolished on lands producing figs and tobacco. The only increase of taxation is an addition to the tax on the consumption of tobacco. The *octroi* duties Tricoupis proposes to abolish, replacing them with import duties on wheat and live animals imported from abroad amounting to double the *octroi*, the proceeds of which will be handed over to the municipalities.

The conversion of the public debt carried out by Tricoupis has resulted in a saving of 7,779,000 drachmas in 1889, which is increased in 1890 to 9,076,000 drachmas. The 5-per-cents. at the close of 1889 stood at par, and the depreciation of the currency, which was 30 per cent. when the ministry came into office, was only 15 per cent. The budget for 1890 restricts revenue to 93,967,720 drachmas, and expenditure to 91,081,000 drachmas, showing again a surplus. The actual revenue in 1880 was only 37,000,000 drachmas, and in 1887, when the new Cabinet had to deal with a deficit of 120,000,000 drachmas bequeathed to it by the Delyannis ministry, eminent financiers counseled the arbitrary reduction of the interest on the public debt, predicting that the country could not supply the treasury with more than 60,000,000 drachmas a year. The Government, which still retains the confidence of the country, judging from elections in Corfu and the Cyclades that took place in the autumn of 1889, would not be goaded by the Opposition beyond an attitude of sympathetic neutrality in the Cretan question (see TURKEY), and in spite of the taunts of his political enemies and of foreigners in regard to the ineffectiveness of the army, Tricoupis proposed to curtail the expenditures of the Ministry of War for 1890 by 1,000,000 drachmas. The analysis of revenue for 1890 is as follows: Direct taxation, 20,167,230 drachmas; taxes on consumption, 28,765,910 drachmas; customs, 15,986,000 drachmas; monopolies, 8,993,000 drachmas; rent and sale of state property, 7,065,660 drachmas; economies in expenditure, 2,720,000 drachmas; various receipts, 3,345,000 drachmas; road-building funds, 3,378,915 drachmas; light-house fund, 450,000 drachmas; municipal *octrois*, 756,000 drachmas; international telegraphs, 340,-

000 drachmas. The expenditures under the various heads were as follow: Service of the debt, 29,587,219 drachmas; pensions, 4,880,144 drachmas; civil list and appanage of the Prince Royal, 1,325,000 drachmas; legislation, 401,658 drachmas; Ministry of the Exterior, 2,263,154 drachmas; Ministry of Justice, 5,133,878 drachmas; Ministry of the Interior, 4,721,930 drachmas; Ministry of Worship and Education, 3,222,990 drachmas; Ministry of War, 18,137,000 drachmas; Ministry of Marine, 4,830,824 drachmas; Ministry of Finance, 1,464,318 drachmas; administration of taxes, 8,413,370 drachmas; various expenditures, 6,400,500 drachmas.

The Army.—Universal liability to military service was introduced by law of 1879, supplemented by laws passed in 1882 and 1886. The term of active service with the colors is fixed at two years, but it is much shortened by long leaves of absence. The strength of the army in 1889 was 1,956 officers, and 24,157 rank and file, or a total of 26,113 men, including 3,743 gendarmes. The number of field guns was 120; of horses and mules, 3,724.

The Navy.—The war fleet consisted in 1889 of 2 armor-clad line-of-battle ships, 2 armored gunboats, 1 steam frigate, 4 steam corvettes, 3 cruisers, 6 gunboats, and 3 other vessels, besides 21 torpedo boats. The crews numbered 2,945 men, inclusive of 247 officers. The armament is about 210 guns. Three powerful new battleships have been built in France. Of these the "Hydra" was launched on May 15, 1889. The more formidable "Spezzia," which was launched later in the year at Graville, near Havre, is a belted steel ram having a displacement of 4,885 tons, with 11·8 inches of armor at the water line. With engines of 6,700 indicated horse-power, the vessel is capable of steaming 17 knots under forced draught, and 15 knots continuously. There are two 10½-inch breechloaders in barbettes forward surmounting a casemate at the four corners of which are 6-inch breechloaders, while a fifth gun of the same caliber is mounted above it, between the two barbettes. A third barbette aft has another 10½-inch gun. The auxiliary armament consists of 7 quick-firing 6-pounders, 16 Hotchkiss revolving guns, and 5 launching tubes for Whitehead torpedoes. The estimated cost of the three new iron-clads is 26,000,000 drachmas or francs, to be paid out of the recent loan of 135,000,000 drachmas.

Commerce.—The total value of the imports in 1888 was 109,149,000 drachmas, of which 32,887,000 drachmas for cereals, 26,095,000 drachmas for textile manufactures, and 10,730,000 drachmas for animals and animal products, constitute the principal items. The sum of the exports was 95,654,000 drachmas, the chief articles being dried currants of the value of 52,251,000 drachmas; minerals, for 13,696,000 drachmas; lead, for 7,640,000 drachmas; and wine, for 4,415,000 drachmas. Other exports are fruit, drugs and colors, oils and perfumes, tobacco, and skins. The imports come chiefly from Great Britain, Russia, Austria, France, Turkey, and Egypt. Of the exports in 1888 Great Britain took 40,614,000 drachmas, a larger proportion than usual, owing to the decline of the currant export to France. The exports to France amounted to 17,906,000 drachmas; to Belgium,

10,165,000 drachmas; to Austria-Hungary, 7,668,000 drachmas; to Turkey and Egypt, 6,018,000 drachmas. The imports from the United States were valued at 1,891,000 drachmas; exports to the United States, 4,711,000 drachmas. The current crop of 1888 was 158,500 tons, exceeding the largest crop ever before produced by about 30,000 tons. The shipments to Great Britain were 64,554 tons; to France, 40,988 tons; to the north of Europe, 27,881 tons; to the United States, 12,973 tons.

Navigation.—The number of vessels entered at Greek ports in 1888 was 5,976, of 2,373,073 tons, of which 2,524, of 333,122 tons, were Greek; the number cleared was 5,462, of 2,420,530 tons, of which 2,156, of 366,369 tons, were Greek. The mercantile marine, January, 1888, comprised 5,074 sailing vessels, of 227,305 tons, and 83 steamers, of 31,451 tons, exclusive of coasters. The number of sailors employed on Greek merchantmen was 21,591.

Posts and Telegraphs.—The number of ordinary letters sent through the post-office in 1887 was 5,668,443; of postal cards, 179,033; of registered letters, 323,655; of journals, circulars, and other printed matter, 6,602,269. The receipts for that year were 1,052,176 drachmas, and the expenditures were 1,237,239 drachmas.

The state telegraph lines in 1888 had a total length of 6,979 kilometres, with 8,100 kilometres of wire. The number of internal dispatches was 678,511; of international dispatches, 258,127; of official dispatches, 12,888; total, 949,526. The receipts were 1,130,161 drachmas; the expenses, 992,320 drachmas.

Railroads.—There were 708 kilometres of railroads completed in 1889, and 330 kilometres in course of construction. Surveys for a line from the Piræus, by way of Athens and Thebes, to Larissa, connecting with the international trunk line from Vienna, 345 kilometres in length, with 45 kilometres of branches, and also for 3 lines in the Peloponnesus of the total length of 285 kilometres, besides 197 kilometres of subsidiary lines, were completed in the spring of 1889. Capitalists, rendered timid by the recent failure of the *Comptoir d'Escompte*, were reluctant to build the roads, especially since the Porte would not promise to build the section of the international railroad between Salonica and the Greek frontier, or decide on a point of junction, fearing that it might lead to the loss of the provinces desired by Greece. M. Tricoupis decided to build all the projected lines with means of the Government, calculating that a loan of 105,000,000 drachmas would be sufficient. Reasoning that strategic necessity would compel the Turkish Government to build its section of the international line to enable it to put down troops at the frontier as quickly as the Greeks, and at the same point, he determined to settle the junction question by carrying the line to the frontier at the point most advantageous for Greece. He was willing at first to leave the choice of the spot to Turkey. When he expounded his bold plan of constructing the Greek section without waiting for the decision of the Porte, the Sultan's ministers immediately offered to make the junction at the village of Kalambaka. M. Tricoupis rejected this concession, and in April, 1889, asked the Legislature to authorize a loan for the pur-

pose of having the line made by contract to Pazaraki, and thence to Larissa and the frontier or to some other terminus to be left for positive settlement later. The local lines to be built in the Morea are of a very light and inexpensive character with the tracks only 75 centimetres wide, being intended to supply the place of wagon roads, which would cost more to build in that mountainous but productive peninsula. For the Peloponnesian lines, a loan of 25,000,000 drachmas was raised, and for the Athens-Larissa line one of 125,000,000 drachmas.

The Cretan Question.—The insurrection in Crete, which Tricoupis had done his utmost to discourage and prevent, brought thousands of Christian fugitives to Greece, who joined with the party of Delyannis in exciting popular sympathies in behalf of the revolutionary attempt, and demanded of the Greek Government arms to enable them to go back and defend their families and their property from the ravages of the Mussulmans. Tricoupis maintained an absolutely correct attitude until popular excitement rose to such a pitch that he felt compelled to make a move evincing sympathy with the Greek population of the island. In the early part of August he addressed a note to the powers, attributing the disturbances in Crete to the inactivity of the Imperial Government, and describing the Greek population as unarmed and exposed to the attacks in the towns of Turkish hordes who, with the connivance and aid of the Ottoman army, were supplied with weapons and ammunition from the imperial arsenals. The Porte, on Aug. 9, answered this circular with another in which the uprising was traced to its true causes, and the purpose was announced of sending Shakir-Pasha with a military force sufficient to repress the insurrection.

GRIPPE, LA. See INFLUENZA, EPIDEMICS OF. **GUATEMALA**, a republic of Central America. (For details of area, population, and vital statistics, see "Annual Cyclopædia" for 1888.)

Government.—The President is Gen. Manuel Lisandro Barillas. The Vice-President is Gen. Calixto Mendizábal. The Cabinet is composed of the following ministers: Foreign Affairs, Don Enrique Martínez Sobral; Public Instruction, Don Francisco Muñoz; Interior and Justice, F. Anguiano; Public Works, S. Barrutia; Finance, Don Rafael Salazar; War, Don Calixto Mendizábal. The Guatemalan Minister at Washington is Don Francisco Lainfiesta; the Consul-General at New York is Mr. Jacob Baiz; the Consul-General at San Francisco, Don Domingo Estrada; the United States Minister for all Central America, resident at Guatemala, is Lansing B. Mizner; Consul-General, James R. Hosmer.

Finances.—On Dec. 31, 1888, the national indebtedness stood as follows: Home debt, consolidated, £945,000; foreign debt, £923,000; floating debt, £359,000; total, £2,227,000 (equal to \$13,094,944). The net revenue in 1887 was \$2,332,510; in 1888, \$3,288,106. The outlay for 1889 is estimated at \$2,288,703; for 1890, \$4,577,406. In 1889 an issue of paper money was made to the extent of \$1,000,000, which the treasury takes in payment of import and export duties, except a fraction of the former set aside for paying the interest on the home and foreign debts, which is payable in coin. A sinking fund

provides for the withdrawal of 12 per cent. per annum of this paper-money issue, which is to serve the purpose of settling arrears of salaries, civil and military, while the floating debt is to be paid off by the issue of treasury notes bearing 5 per cent. interest, 1 per cent. per annum to be set aside toward the operations of the sinking fund.

The consolidated bonds of the home debt are currently sold on the Stock Exchange, where they have been bought in large amounts. Dating from April 13, 1889, the Government's financial agents in London declared themselves ready to pay £80 for every \$500 of these consolidated home-debt bonds, and for accrued interest £4 16s. for every \$30 coupon.

The amount of import duties collected in 1888 was \$2,388,385. The Minister of Finance issued an order that from Sept. 1, 1889, goods shall not remain in bond more than three months; the first month to involve no expense, the second month 1 per cent. storage on their value to be collected, and the third month $1\frac{1}{2}$ per cent.

The legal interest in Guatemala has been fixed at 6 per cent. per annum, instead of 12.

The Government has empowered the municipality of San José to issue bonds to the extent of \$2,000,000, for the purpose of furnishing the city with water works, a new market, and a city hall.

Postal Service.—On Jan. 7, 1889, the five republics signed a postal and telegraph convention between them, and Guatemala and Salvador an agreement about the telephone service between the two states.

Press Association.—The daily press of Guatemala has combined to form an Associated Press, for news by cable and otherwise, the model of the one in New York.

Steamer Lines.—The Minister of Public Works renewed for two years from July 1, 1889, the contract by virtue of which the Pacific mail steamers plying between Panama and San Francisco touch monthly at the ports of San José and Champerico. Another agreement was made with the Honduras and Central American Steamship Company of Glasgow for a bi-monthly service between New York and Livingston.

New Port.—The Government made a contract in January, 1889, with a London syndicate for the purpose of rendering more accessible the projected new port of Morazan at the mouth of the Michatoyo river. Capitalists of Quezaltenango, Retalhulen, and Suchitepéquez have subscribed \$500,000 toward deepening the entrance into the port of Ocos.

Railroads.—In September, 1889, a contract was signed by Guatemala with the Suez Canal Company for the construction of a northern railroad, which will be united to the central line of Guatemala. This work will be of great importance to Guatemala and all Central America, as well as to those doing business on the Pacific coast, since it will establish direct communication between the Atlantic and the Pacific across Guatemala. The French company will place at the disposal of the Government 106,562,500 francs, with which the nation will purchase the Guatemala Central Railroad, which is worth 20,000,000 francs (\$4,000,000), and with the remainder the company will construct the Northern Railroad with the necessary wharves, stations, etc. The sum of 10,000,000 francs will

be used to establish an agricultural mortgage bank. The cost of the new railroad is estimated at \$40,000 the kilometre. The loan, which is secured by the eventual net earnings of the railway and the revenues of custom houses in the republic, bears 6 per cent. interest, and was taken by the London Debenture Corporation at 80, and placed on the European market at 92. The Atlantic terminus of this railway will be at Puerto Santo Tomás. The Government has agreed to pay for ten consecutive years an annual subsidy of \$32,000 to the branch line that is to connect Esquintla with Patulul.

Commerce.—The imports and exports for six years have been as follow:

YEARS.	Imports.	Exports.
1883	\$2,420,569	\$5,718,341
1884	3,829,651	4,937,941
1885	3,788,135	6,069,646
1886	3,537,399	6,179,508
1887	4,241,408	9,039,391
1888	5,042,395	7,715,344
Total	\$22,859,557	\$39,660,166
Excess of export over import		16,800,609

Of the imports in 1888 33 per cent. came from England, 22 per cent. from the United States, and 21 per cent. from Germany. The American trade presents these figures:

CALENDAR YEAR.	Import into the United States.	Domestic export to Guatemala.
1887	\$2,729,342	\$675,811
1888	1,877,038	967,240

A Large Plantation.—During the summer of 1889 eight commercial firms of Hamburg purchased the coffee plantation El Porvenir, at Quezaltenango, forming a stock company with a capital of 2,000,000 marks. This plantation is watered on one side by the Rio Negro, and on the other by the Rio Cabús. It covers 6,600 hectares, and gradually rises from an altitude of 2,200 to 5,000 feet above sea level. The highest portion is planted with coffee, and has some pastures; the lower portion is devoted to sugar and banana culture, cocoa and India-rubber trees. About 720 hectares are covered with coffee shrubs, and 900 hectares are kept in reserve for a similar purpose. Between 1881 and 1885 1,025,271 coffee shrubs were planted, and those of 1881-'83 are in full bearing, while of those of a later planting, 282,699 produced the first coffee in 1888 and 1889. There are also extensive plantations of castor-oil plants, Indian corn, and 150,000 cinchona trees. Irrigation is obtained by a canal five kilometres long and six feet wide. The number of Indians employed is 3,000.

Mining.—Work was begun early in January, 1889, at the Santiago silver mine, property of Messrs. Condé & Co., and the encouraging results have given animation to the surrounding villages of San Rafael, Las Flores, and Mataques-cuintla, where building is going on briskly and commerce has taken a start.

Education.—The Government has authorized the Minister of Public Instruction to found at San José a geographical, statistical, and ethnological society. New public schools are to be built at San Martín, Patzicía, Itzapa, Parramos, Zaragoza, Poaquil, and Yepocapa.

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HAWAII, a constitutional kingdom (better known as the Hawaiian or Sandwich Islands), in the Pacific Ocean, between latitude 18° 50' and 22° 15' north and longitude 154° 45' and 160° 30' west from Greenwich. They are 2,100 miles southwest from San Francisco, with which port they are are connected with a bi-monthly line of steamers. Their location gives them commercial importance, they being the only islands north of the equator on the great ocean highway between the Pacific coast of the United States and Australia, China, and Japan. They are fast becoming a popular winter resort for travelers, owing to the salubrious climate, beautiful scenery, and the constantly active volcano of Kilauea on the island of Hawaii. The reigning sovereign is Kalakaua I, born Nov. 16, 1836, who was elected by the people in 1874. The heiress presumptive to the throne is the King's eldest sister, Princess Lydia Kamaheha Liliuokalani, born Sept. 2, 1838, whose husband, John O. Dominis, is an American. The Legislature consists of 24 Representatives and 24 Nobles, who sit together. A new Constitution was proclaimed on July 6, 1887. The nobles, who were formerly nominated by the King, were made elective. The electoral body consists of all the adult male citizens. The nobles, in addition to the educational qualifications required in the representatives, must possess a certain amount of property. Their term is six years, while the representatives are elected for two years. The Legislative Assembly has power to amend the Constitution. The absolute veto formerly exercised by the King was changed into a conditional veto, which can be annulled by a two-third vote of the Assembly, by the Constitution of 1887, which also established the principle of ministerial responsibility. The present Cabinet is composed of the following members: Minister of Foreign Affairs, Jonathan Austin; Minister of the Interior, L. A. Thurston; Minister of Finance, S. M. Damon; Attorney-General, C. W. Ashford. The United States Government has both diplomatic and commercial representatives resident at Honolulu, viz., John L. Stevens, Minister President, and H. W. Severance, Consul-General. The Envoy Extraordinary and Minister Plenipotentiary for Hawaii at Washington is H. A. P. Carter; the Hawaiian Consul-General at New York, Elisha H. Allen; at San Francisco, D. A. McKinley.

Honolulu, on the island of Oahu, is the capital of the kingdom, has a population of 2,100, and possesses the only available harbor in the group. (For area and population, see "Annual Cyclopædia" for 1888). The foreign population of the Kingdom is rapidly increasing, and the soil has passed in a large measure into the hands of Americans and other foreigners, who cultivate sugar-cane with imported labor, Portuguese, Chinese, and latterly Japanese.

Industries.—The principal industry of the islands is the culture of sugar-cane and manufacture of sugar, which has increased largely since the treaty of reciprocity was made in 1876.

During that year the export of unrefined sugars into the United States was about 13,000 tons. In 1888 it amounted to over 117,000 tons. The following is from a recently prepared statement of the amount of the sugar interest in Hawaii credited to each nationality:

American	\$22,537,210
British	4,990,830
German	1,756,300
Hawaiian	226,350
Others	290,300
Total	\$29,800,990

Finances.—The budget is voted biennially. In that for 1888-'90 the receipts have been estimated, and expenditures voted, as follows:

REVENUE.	
Custom-House	\$1,027,000
Internal commerce	166,000
Internal taxes	747,000
Fines, fees, perquisites, etc.	183,000
Government realizations	430,000
Government stocks	
From loans	
Postal savings	
Crown commissioners	
Cash in the treasury, April 1, 1888 ..	63,913
Total	\$2,618,913

EXPENDITURES.	
Civil list	\$76,800
Permanent settlements	6,000
Legislature and Privy Council	25,300
Judiciary Department	183,600
Department of War	
Department of Foreign Affairs	191,633
Department of Interior	1,377,816
Department of Finance	608,504
Department of Attorney-General	268,680
Bureau of Public Instruction	239,670
Board of Health	320,929
Miscellaneous	
Contingent	96,000
Total	\$3,396,932

By virtue of a law signed on Sept. 1, 1886, a debt of \$2,000,000 was contracted in London at 6 per cent. interest, in order to pay off anterior loans. The capital of the debt on April 1, 1888, was \$1,936,500.

Coinage.—Silver coins of the denominations of one dollar, halves, quarters, and dimes, of the same weight and standard as those of the United States, to the value of \$1,000,000, were coined at San Francisco in 1885, and are the circulating medium of the islands. United States gold is the standard for the payment of all sums over ten dollars.

Commerce.—The commerce of the islands has increased to a wonderful extent since the negotiation of a treaty of commercial reciprocity with the United States in 1876, as will be seen by the subjoined table, which is taken from the reports of the Hawaiian Collector-General of Customs at Honolulu:

YEARS.	Value of imports.	Value of domestic exports.	Total value of exports.	Custom-House receipts.
1876	\$1,811,770	\$2,055,133	\$2,241,041	\$199,036
1888	4,540,887	11,631,434	11,903,393	546,142

A renewal of this reciprocal treaty was effected in 1887 for a period of eight years, in consideration of which the Hawaiian Government made a virtual cession of Pearl River harbor, nine miles from Honolulu, to the United States Government for its sole use as a naval, coaling, and repair station. The commerce of 1888 was distributed among the countries having commercial relations with Hawaii in the following proportions:

COUNTRIES.	Imports.	Domestic exports.
United States	\$3,329,512	\$11,620,906
Great Britain	652,171	.....
China and Japan	199,706	.....
Germany	183,124	.....
Australia and New Zealand	110,932	.....
Other countries	65,452	10,528
Total	\$4,540,887	\$11,631,434

The following table will show the amount and value of the principal articles of export, most of which, as will be seen by the above table, were sent to the Pacific ports of the United States, the nearest and the natural market of the islands:

ARTICLES.	Quantity.	Value.
Sugar, pounds	235,888,346	\$10,818,883
Rice, pounds	12,898,600	577,583
Hides and skins, pieces	47,764	95,771
Bananas, bunches	71,335	69,208
Wool, pounds	562,289	41,084
Tallow, pounds	204,743	7,506
Molasses, gallons	47,965	5,900
Other articles .....	.....	15,499
Total value .....	.....	\$11,631,434

The export value of supplies furnished to naval and merchant vessels for 1888 are estimated at \$195,800; of foreign goods exported, \$76,163. The imports of bullion and specie in 1888 were \$1,209,077; the exports \$28,520. The principal seaport of the islands is Honolulu, where in 1888 imports of the value of \$4,145,321 were landed, and exports to the value of \$9,581,025 were shipped. The remainder of the commerce was divided between the port of Kahului, on the island of Maui, and Hilo and Mahukona, on Hawaii.

Navigation.—The number of merchant vessels that entered Hawaiian ports during the year 1888 was 247, of 220,216 tons, against 254, of 210,703 tons in 1887. The vessels and tonnage entered in 1888 were, as to nationality, in the following proportion:

FLAG.	Number.	Tons.
American	164	113,069
Hawaiian	43	65,155
German	8	6,385
British	24	28,715
Others	8	6,892
Total	247	220,216

The number of Hawaiian registered vessels in the coasting and foreign trade was 61, of which 21 were steamers. The aggregate tonnage was 15,406.

HAYTI, a republic in the West Indies, covering the western third of the island of Santo Domingo, an area of 28,900 square kilometres.

The population was 960,000 in 1887, distributed as follows:

DEPARTMENTS.	Population.	Chief cities.	Population.
Southern	250,000	Aux Cayes	25,000
Western	350,000	Port-au-Prince	60,000
Artibonite	184,000	Gonaïves	18,000
Northern	187,000	Cape Hayti	29,000
Northwestern	39,000	Port-de-Paix	10,000

Government.—The President (since Oct. 17, 1889) is Gen. Florvil Gelin Hippolyte. His Cabinet is as follows: Minister of War and Marine, Gen. Monpoint, Jr.; Interior, Gen. St. Martin Dupuy; Justice and Worship, Léger Cauvin; Public Instruction, Dantes S. Rameau; Finance, Commerce, and Foreign Affairs, Antenor Firmin; Public Works and Agriculture, Clément Hœutjens. The Haytian Minister at Washington is Annibal Price; the Consul at New York, Normil Deslandes. The United States Minister to Hayti is Frederick Douglass.

Finances.—The new Government has been obliged to assume a heavy financial burden. The \$2,000,000 worth of paper money that during President Salomon's administration had been gathered in to be destroyed was floated again by Légitime and followed by \$2,000,000 of the same kind. There are also two loans of \$600,000 each, forming a bonded debt of \$1,200,000, the interest of which is payable in gold.

The conversion of the 6 per cent. Haytian foreign bonds of 1869 began in London on July 28, 1889, those not presented up to Aug. 26 at Port-au-Prince and the chief cities of departments to forfeit their right to conversion.

An American Syndicate.—It appears that Hippolyte, as provisional President, granted certain important rights and privileges to an American syndicate, which act, it is understood, will soon be confirmed now that he has been elected President. The syndicate proposes to furnish a capital of \$18,000,000, and the Government of Hayti agrees to concede to it all rights pertaining to the construction of railways, telegraphs, mining, building of bridges, and the establishment of banks and institutions of credit.

Commerce.—Prior to the civil war of 1888-'89, the imports into Hayti were \$6,000,000 per annum, and the exports \$9,000,000, the bulk of the business being with the United States; with France, the trade amounted to \$2,000,000, mostly for luxuries. The American trade presents these figures:

CALENDAR YEAR.	Import from Hayti.	Domestic export to Hayti.
1887	\$1,884,803	\$3,762,772
1888	3,178,484	3,954,465
Increase	\$1,293,681	\$191,693

The increase in the amount imported into the United States was due to the rise in coffee.

Events of 1889.—The war was not very exciting to foreigners after the conclusion of the Haytian Republic incident. It dragged slowly along; there were occasional desultory fights, and Hippolyte steadily drew nearer to Port-au-Prince. Both sides were well supplied with arms. Hippolyte's agent in New York bought arms and

ammunition for his army. Ostensibly their destination was Monte Christo, Santo Domingo, a town near the border, but they quickly found their way into his hands. Légitime made spasmodic raids into the enemy's territory, but gained nothing. On Dec. 3, 1888, he bombarded Cape Hayti from the harbor, but desisted after he had thrown a few shells, and never resumed the attack. The blockade was nominally continued, but foreign vessels came and went as they chose. On Jan. 25, 1889, the troops of Hippolyte captured the seaport town of Grande Saline and butchered three hundred of the army of Légitime. In several encounters the utmost barbarity was displayed on both sides, the forces of the Government usually being defeated. On March 10, Légitime sent to the insurgent general a committee accompanied by M. de Semailson, the French minister, bearing proposals of peace. They were disdainfully refused. Légitime took his revenge when, on April 7, at the head of two thousand men, he surprised the town of Petite Rivière, captured it, and burned its six hundred houses. England joined France in the recognition of Légitime, while Germany instructed her ships to respect his blockade of the Haytian ports. The United States Government refused to recognize either party as a legitimate power. Hippolyte captured the towns of Marchand, Marmelade, and St. Michel in the first week of May, opening communication between St. Marc and Gonaïves. A week later, two of Légitime's generals fled before the insurgents and Hippolyte rapidly advanced toward Port-au-Prince, while the army of Légitime was fast being reduced by panic and desertion. He finally lost everything but Port-au-Prince and the territory immediately surrounding it. His forces occupied Arcahial, the strongest fortress near the capital, which he regarded as impregnable, and La Coupe, another strong position near it. Hippolyte reached this point early in July. Then Légitime's cause became evidently hopeless, and he wanted arbitration. He made overtures to the American consul to act as arbitrator, and the latter accepted the task. But Hippolyte had gained too much to submit to arbitration. He had stormed Arcahial several times, and had been driven back each time, but on July 9 he made a last desperate effort and captured the fort. This put an end to all hope of arbitration. Nothing remained between Hippolyte and Port-au-Prince but La Coupe, and Hippolyte very soon discovered that he could buy his way into that stronghold. He entered into negotiations with the general in command, and it was decided that on July 16 the former should make an attack on the fort, an apparent resistance would be made, and La Coupe, too, would have been won. Légitime heard of this arrangement, determined to defeat the project, and on the date mentioned stationed a strong force in ambush near the point where the fort would be attacked. In a little while Hippolyte's men made the attack, the garrison rushed out, fired a few shots in the air, and began to retreat. Then the force in ambush made its appearance and completely routed the attacking party. The treacherous general was put into prison at Port-au-Prince, and nothing has been heard of him since. Before the repulse, Hippolyte managed

to secure eighteen prisoners, and the next day, out of revenge, he had these poor wretches stood up before his army, and remorselessly cut the throat of every one. Légitime's retaliation was swift and terrible. He had eight prisoners of war, whom he caused to be butchered in the public square, in the presence of a large crowd. The men were gagged, and one by one their throats were cut. One of the men succeeded in dislodging the gag from his mouth, and his piteous cries for mercy so delighted the crowd that the gags were removed from the remainder, in order that their cries might give further zest to the entertainment.

With the fall of Arcahial Hippolyte's victory was assured; Port-au-Prince held out longer than was expected, but its loss in the end was certain. On Aug. 10, Hippolyte again attacked the outpost La Coupe at one in the afternoon. The contest was very spirited, and lasted until sunset, leaving in his possession the road connecting his position with the coast, the western entrance into Port-au-Prince, its weakest one, and Léogane, an important seaport twenty miles west of Port-au-Prince. Léogane fell two days afterward, and gave Hippolyte control of the main road connecting the capital with the south. Along this he advanced, and by the 19th his left wing rested within four miles of the capital. La Coupe was again attacked by Hippolyte on the afternoon of that day, and was evacuated during the night.

The next morning Légitime sent for the United States minister, and gave him full power to treat with Hippolyte, he binding himself to subscribe to any terms Mr. Thompson should agree upon. The latter informed Hippolyte that Légitime was desirous of leaving the country and to offer terms of peace. It was agreed that Légitime should embark on a French war-vessel, and that afterward the northern troops were to be admitted into the city. Légitime went on board a French corvette on Aug. 22, which sailed for Santiago de Cuba, while Hippolyte's forces, seven thousand men, quietly occupied the capital on Aug. 23. Légitime left Santiago for New York, where he embarked with his followers for Havre on Sept. 7.

The army of the north, commanded by Gen. Mon-Point Jeane, entered the capital on Aug. 23, and Hippolyte himself on Aug. 24. The Constituent Assembly was convoked to enter upon its duties of elaborating a new Constitution on Sept. 24, and on Oct. 17 unanimously elected Gen. Hippolyte to the presidency of the republic, the number of votes cast being ninety-one. The new Constitution embraces the following features:

The powers of government are divided into three parts—a legislative, an executive, and a judicial body. The Legislature is composed of a Chamber of Commons and a Senate. The members of the former body are elected for a period of three years and the latter for six years. All members are indefinitely eligible to re-election. The executive power is to be vested in a President, elected for a term of four years by both Houses of the Legislature in joint convention. This is one of the principal changes to be introduced, as up to this time the Executive was elected for seven years. The manner of his election is described, and two thirds of a quorum is necessary for a choice, except in the case of a dead-lock, when the two candi-

dates who have the highest number of votes are to be balloted for, and the one having a majority is elected. The inauguration is to take place on May 15 after the date of his election. The President has the power to appoint his Cabinet, which is composed of eleven "ministers of state," as they are called. In case of the death of the President, these "ministers" are to form a committee to govern the country until a new President can be chosen. The judicial power is in the hands of courts similar to the United States courts.

HOLLAND. See NETHERLANDS.

HONDURAS, a republic in Central America; area, 39,600 square miles; population in 1887, 329,134.

Government.—The President is Gen. Luis Bográn, whose term will expire on Nov. 29, 1891. The Cabinet is composed of the following ministers: Foreign Affairs, Licenciado Don Jerónimo Zelaya; Justice, Public Works, and War Señor, R. Alvarado; Interior, Don Crescencio Gómez; Finance, Señor F. Planas; Agriculture, Señor A. Zelaya. The American Consul at Ruatan and Trujillo is William C. Burchard, and at Tegucigalpa, Daniel W. Herring. The Consul General of Honduras at New York is Jacob Bais; at San Francisco, William V. Wells.

Finances.—On July 31, 1888, the foreign debt was reduced to \$37,000, while the home debt amounted to \$1,899,620, a total national indebtedness of \$1,936,620. State property, on the other hand, represents a value of \$3,273,237. The income during the period from July 31, 1886, to July 31, 1888, was \$2,818,264, and the outlay \$2,826,531. During the preceding biennial period, July 31, 1884, to July 31, 1886, the outlay had been \$2,596,934. The revenue of the period 1886-'88 was derived from the following sources: Import duties, \$1,164,629 (against \$1,085,502, during the previous biennial period); liquor tax, \$614,454; tobacco tax, \$226,012. The salary of the President of the republic is \$800 a month; that of Cabinet ministers, \$200 a month.

The Fruit Trade.—A report was received from New Orleans early in September, 1889, to the effect that a new departure had been inaugurated by twenty-five fruit growers of the north coast of Honduras, who formed a stock company for the purpose of exporting their products to the United States, and, with that end in view, chartered the Norwegian iron screw steamer "Welhaven," 700 tons burden, having storage capacity for about 13,000 bunches of bananas. A semi-monthly service between New Orleans and the coast of Honduras was decided on, with regular sailing dates for Utila, Trujillo, and Cuba, thus supplying a great want to New Orleans exporters. The steamers are also to carry the regular mails.

Mines.—The outlook for mining in the Republic of Honduras is steadily improving, and many capitalists and miners have gone thither from the United States. President Bográn predicts confidentially that before the close of 1890 there will be a large increase of population, as the attention of the agriculturists of the Southern States has been called to the large profits now being made by the fruit growers in that stretch of country between Trujillo and Puerto Cortez. It is understood that operations will soon be begun on the proposed line of railroad that is to connect these two points, and that the money is

being found in the United States. It is estimated that the fruit, mahogany, and rubber trade of that section of the country will earn enough to pay the interest on the bonded debt of the railroad. New enterprises are being established every day. The Rosario silver mine is the largest producer in the republic, and is turning out about £15,000 in silver every month. The San Marcos, with its ten-stamp mill, is also giving satisfaction, and arrangements are being made to add thirty stamps to the present machinery, giving the mine the capacity for a production of over £100,000 per annum in silver. The mines of Opoteca have been sold to London capitalists, and arrangements are being made to begin work with 100 stamps, with the intention of eventually adding 200 more stamps. The Honduras Gold Placer Company has built a small town at Buena Vista, on the Guayapé, and has a large force at work making all preparations to get at the river-bed as soon as the river begins to fall. Their pack-trains are on the road all the time between Trujillo and their camp, bringing up machinery and mining utensils. The Concordia mine, near the head of the Guayapé, is being worked with a five-stamp mill, and averages about seven ounces in gold to the ton.

Commerce.—The export in 1888 reached \$3,350,664, and was composed chiefly of bananas, cocoa-nuts, indigo, India-rubber, sarsaparilla, and cedar wood. The American trade shows these figures:

CALENDAR YEAR.	Import into the United States.	Domestic export to Honduras.
1887	\$993,969	\$575,309
1888	1,258,453	656,534
Increase	\$264,484	\$81,225
or	27 per cent.	14 per cent.

Colonization, etc.—A Colonization Company was organized and incorporated in Chicago, Ill., early in 1889, with a capital of \$250,000, for the purpose of forming an American settlement of a hundred families in Honduras, under a contract with the Government. In March a contract was made to build at Tegucigalpa a cotton mill, and furnish the city with electric light.

Education.—The normal school at Tegucigalpa was reorganized in May, and a new institute for the teaching of arts and mechanics was founded.

Water Works.—The Government, in May, made a contract with the Banco Nacional Hondureño, which undertakes to furnish the means for endowing the city of Tegucigalpa with water works. This bank went into operation on Jan. 1, 1889, with a capital of \$1,000,000.

The Mahogany Forests.—These are reached by following the Ulna river from Comayagua to the Atlantic coast. The finest variety grows on hard, rocky soil, and is of such slow growth that the grand ones, still standing in isolated spots, are estimated to be over two thousand years old. It is difficult to convey an adequate idea of the grandeur of these forests; the leafy roof keeps out every ray of sunlight, rendering the ground-light about equal to that of the early gray of morning. The cutting season begins in August, and the tree is usually cut ten feet from the ground, the men working on a rude platform.

I

IDAHO, a Territory of the United States, organized in 1863; area, 84,800 square miles; population, according to the last decennial census (1880), 32,610; capital, Boise City.

Government.—The following were the Territorial officers during the year: Governor, Edward A. Stevenson, Democrat, succeeded by George L. Shoup, Republican; Secretary, Edward J. Curtis; Comptroller, James H. Wickersham; Treasurer, Charles Himrod; Attorney-General, Richard Z. Johnson; Superintendent of Public Instruction, Silas W. Moody, succeeded by Charles C. Stevenson; Chief Justice of the Supreme Court, Hugh W. Weir, succeeded by James H. Beatty; Associate Justices, Charles H. Berry and John Lee Logan, succeeded by Willis Sweet.

Legislative Session.—The Territorial Legislature was in session from Dec. 10, 1888, to Feb. 8, 1889. Its most noteworthy act provides for the establishment of the University of Idaho at Moscow, in Latah County, and appropriates \$15,000 for the purchase of a site and the preparation of plans. An annual tax of half a mill on each dollar is imposed on the taxable property of the Territory for four years, to secure a building fund. A stringent anti-Mormon act provides that those who have practiced, taught, aided, or encouraged polygamy or bigamy, or have been members of any order or association teaching such practices since Jan. 1, 1888, shall not be permitted to register or vote until two years after they have taken a stringent oath as prescribed by the statute, renouncing such practices, and until they have also made it appear to the satisfaction of the District Court that during the two years they have not been guilty of bigamy or polygamy, and have not been members of the Mormon organization, or aided it or taught or aided its doctrines. The counties of Elmore and Logan were set off from the county of Alturas, and a small portion of the latter county was added to the county of Bingham. Subject to the approval of Congress, an act was passed laying out a highway from Mt. Idaho, in Idaho County, to Little Salmon Meadows, in Washington County, intended to form a great highway between North and South Idaho. The sum of \$50,000 was appropriated therefor, to be raised by the sale of bonds, and an annual tax of two cents on each \$100 was levied to pay the interest and principal of such bonds. The sum of \$15,000 was appropriated for improvements at the Idaho Insane Asylum at Blackfoot. Congress was memorialized to exempt mining property from the operation of the alien-land act; to require an anti-Mormon test oath of all persons seeking homes on the public domain; to appropriate money for sinking artesian wells; to secure irrigation; to reduce the size of Indian reservations; to refuse admission to Utah; and to enlarge the Yellowstone National Park. Other acts of the session were as follow:

Giving any person who does any labor upon any farm or lands, in tilling them or in cultivating, harvesting, or housing any crop raised thereon, a lien on such crop for such labor; but such lien does not extend to

a lessor's interest in any crop raised on his land, and it must be filed within thirty days after the labor is finished.

Requiring all companies or associations engaged in insurance on the assessment or co-operative plan to file annual statements of their business with the Territorial Comptroller, to be published by him.

Making women eligible to the office of county superintendent of schools.

Creating a prison commission, to be appointed by the Governor with the consent of the Legislative Council, which shall provide for the safe-keeping, working, and maintaining of all Territorial prisoners, having power to contract with any State or Territory or the United States for their keeping, and to maintain a general oversight of their welfare.

Punishing with fine or imprisonment, or both, any one, except public officials and the employes of any express company on duty, who carries, exhibits, or flourishes any dirk, dirk-knife, sword, sword-cane, pistol, gun, or other deadly weapon within any city, town, or village, or in any public assembly.

Reapportioning the members of the Legislature.

Creating a board of three live-stock commissioners, to be appointed by the Governor and Council, and a Territorial stock inspector to be appointed in the same manner, and prescribing the duties of each in suppressing contagious diseases and in carrying out the provisions of this act.

Punishing with a fine of \$100 and costs any one that sells or gives cigarettes, or tobacco used to make cigarettes, to persons under twenty-one years of age.

Fining persons who abuse animals, or who are caught driving stock with dogs from any watering-place, hay bottom, or stock range.

Offering a reward of \$250 for the arrest of cattle-thieves, highway robbers, and train-wreckers.

Authorizing the State of Oregon to erect and maintain a fish-hatchery in the Territory.

Punishing persons who willfully cut down, burn, or otherwise injure the poles, wires, and other property of telegraph, telephone, or electric-light companies.

Raising the age of consent from sixteen to eighteen years.

Education.—For the school year ending Aug. 31, 1889, the following report regarding public schools is made by the Territorial Superintendent: districts, 385; houses, 294; schools, 434; pupils enrolled, 12,678; school libraries, 21; volumes in libraries, 2,211; boys of school age, 12,386; girls of school age, 11,685; received for school purposes, \$198,782.05; expended for school purposes, \$160,579.92; average monthly wages of teachers, \$49; average length of school year, 5½ months; estimated value of school property, \$344,500.

A general law for the establishment of independent districts has been enacted by the Legislature, with a view of providing better educational facilities for special localities. Any school district that has within its limits taxable property of the amount of \$200,000 or over may be organized into an independent school district. It then has power to sue and be sued, to have a corporate seal, to hold and convey such real and personal property only as is needed for actual school purposes, and to choose such officers as are provided by law. Schools are organized under this law at Moscow, Latah County, and Em-

mett, Ada County. The compulsory school law of the Territory is practically inoperative.

Charities and Prisons.—The Territorial Insane Asylum is at Blackfoot, in Bingham County, on a tract of 72 acres. The buildings and grounds have cost about \$40,000. On July 1, 1888, there were 46 patients; 30 patients were admitted during the year following, and 14 discharged, leaving 62 patients remaining on July 1, 1889. The expenditures for the year amounted to \$19,322. Late in November the main building was destroyed by fire and several inmates perished. The Territorial prisoners are confined in the United States Penitentiary at Boise City. In October, 1889, they numbered 66. The Penitentiary at that date contained 69 convicts, three belonging to the United States.

Railroads.—By virtue of a law enacted by the fourteenth Legislative Assembly, the Governor, the Comptroller, and Treasurer constitute a board of equalization, whose duty it is to place a valuation per mile on each line of road passing through more than one county. The board assessed this year, under the law, 888 miles of railroad, at a valuation aggregating \$4,719,786.

Statistics.—The assessed valuation of the Territory, by counties, in 1889, is as follows: Ada, \$3,041,822; Alturas, \$814,387; Bear Lake, \$861,294; Bingham, \$2,863,712; Boise, 718,441; Cassia, \$948,611; Custer, 882,800; Elmore, \$1,161,771; Idaho, \$976,852; Kootenai, 788,599; Latah, \$2,101,914; Lemhi, \$725,000; Logan, \$1,941,822; Nez Perces, \$1,203,192; Oneida, \$1,090,864; Owyhee, \$1,007,775; Shoshone, \$1,632,386; Washington, \$1,186,796. Total, \$23,948,038. In this total are 81,982 horses, valued at \$2,110,717; 307,300 sheep, valued at \$528,038; 1,703 mules, valued at \$63,409; and \$224,725 cattle, valued at \$2,854,411.

The agricultural products for 1889 are estimated as follow: Wheat, 3,469,200 bushels; oats, 2,140,800 bushels; barley, 1,150,450 bushels; corn, 407,400 bushels; rye, 640,900 bushels; grass-seeds, 17,350 pounds; hay, 424,740 tons; potatoes, 1,850,900 bushels; other vegetables, 838,000,300 bushes; apples, 277,000 bushels; pears, 29,850 boxes; peaches, 34,850 boxes; plums and prunes, 34,350 boxes; grapes, 18,200 boxes; berries of all kinds, 76,600 boxes.

The mining product for the same year is reported by the Governor to aggregate \$17,344,600, or nearly twice as much as in 1888. The value of gold produced was \$3,204,500; silver, \$7,564,500; lead, \$6,490,000; copper, \$85,600. Nearly all the large increase over 1888 comes from Shoshone County, where, on the forks of Cœur d'Alene river, rich deposits of silver and lead have recently been discovered and worked. The mineral product of this county alone for 1889 is estimated at \$9,630,000, consisting of gold valued at \$600,000, silver valued at \$3,510,000, and lead valued at \$5,520,000. This is now the greatest lead-producing region in the United States.

Mormonism.—Over one fifth of the population, or more than 25,000 people, in the Territory, are adherents of the Mormon faith. Polygamy is not practiced openly, but that it is practiced secretly to a limited extent there seems to be no doubt, as indictments are found at nearly every term of court in the judicial dis-

tricts having jurisdiction over them, and several persons have been convicted. The anti-Mormon "test oath" passed by the Legislature this year disfranchises nearly all voters of this faith. Its constitutionality was disputed by them before the Territorial Supreme Court, which promptly rendered a decision affirming its validity. An appeal was taken to the United States Supreme Court, where the case was pending at the close of the year.

Indians.—There were no disturbances during the year at any of the reservations in the Territory. Allotments in severalty to the Indians have been made to a limited extent. On the Nez Percé reservation, where there are 1,450 Indians, 290 families are engaged in agriculture, having about 6,000 acres under cultivation. The Lemhi reservation, containing 120,000 acres, is occupied by 789 Indians. So small a part of this area is suitable for agriculture that an attempt was made this year to induce the Indians to remove to the Fort Hall reservation, but without success. On the latter reservation there are 1,593 Indians. In February an act of Congress ratified an agreement by which about one fourth of the reservation, or over 300,000 acres, and 1,800 acres in the town site of Pocatello, were ceded to the Government and opened for settlement. On the Cœur d'Alene reservation the Indians number 423. They all live in houses, and cultivate about 7,000 acres. A commission, appointed for the purpose under an act of Congress, has this year succeeded in obtaining their consent to the cession of 300,000 acres, or one half of their reservation, to the Government. The land ceded includes valuable mining properties, which for some time have been a matter of serious dispute between the Indians and the white settlers. The Duck Valley reservation, containing about 140,000 acres, half of which is in Idaho, provides for 400 Indians.

Irrigation.—The following table, prepared by the Surveyor-General for Idaho, shows the total area of irrigable land in the Territory, and the area already reclaimed by irrigation:

COUNTIES.	Irrigated.	Irrigable.	Irrigated.
	Acres.	Acres.	Per cent.
Ada	60,000	900,000	6·25
Alturas	14,500	268,000	5·13
Bear Lake	21,500	40,000	35·5
Bingham	284,750	2,503,500	10·5
Boisé	83,500	262,000	24
Cassia	82,000	655,000	11·1
Custer	24,000	446,000	5·1
Elmore	10,000	230,000	4·2
Lemhi	10,000	600,000	1·64
Logan	50,000	1,250,000	2·6
Oneida	88,800	148,000	20·8
Owyhee	21,300	248,500	8
Washington	40,000	500,000	7·4
Total	740,350	8,051,000	9·2

The counties of Idaho, Kootenai, Latah, Nez Percé, and Shoshone, not requiring irrigation, are not included in the above tabulated statement. (See IRRIGATION, in this volume.)

Constitutional Convention.—On April 2, 1889, Gov. Stevenson issued a proclamation recommending that the people elect delegates to a Constitutional Convention, to meet at Boise City on July 4, to frame a Constitution for the State of Idaho. This recommendation was approved by

his successor, Gov. Shoup, in a proclamation dated May 11. Seventy-two delegates were elected on the first Monday of June, as provided in the proclamation, nearly sixty of whom appeared at the time and place specified, and all but three were present and participated during part of the deliberations. The convention was in session thirty-four days. The Constitution there framed recognized the Constitution of the United States to be the supreme law of the land. The government of the State is in three departments — legislative, executive, and judicial. The Senate consists of 180 and the House of Representatives of 36 members, and shall never exceed 24 and 60 respectively. Sessions of the Legislature are to be held biennially. Regarding Mormonism the following declaration is made:

The exercise and enjoyment of religious faith and worship shall forever be guaranteed; and no person shall be denied any civil or political right, privilege, or capacity, on account of his religious opinions; but the liberty of conscience hereby secured shall not be construed to dispense with oaths or affirmations, or excuse acts of licentiousness, or justify polygamous or other pernicious practices, inconsistent with morality or the peace or safety of the State; nor to permit any person, organization, or association to directly or indirectly aid or abet, counsel or advise, any person to commit the crime of bigamy or polygamy or any other crime. No person shall be required to attend or support any ministry or place of worship, religious sect, or denomination, or pay tithes against his consent; nor shall any preference be given by law to any religious denomination or mode of worship. Bigamy and polygamy are forever prohibited in the State, and the Legislature shall provide by law for the punishment of such crimes.

In civil cases, three fourths of a jury may render a verdict. The Legislature may provide that in misdemeanor five sixths of the jury may render verdicts.

No property qualification shall ever be required for any person to vote or hold office, except in school elections, or elections creating indebtedness.

No lottery, or anything in the nature of a lottery, shall be authorized by the Legislature.

The executive department shall consist of a Governor, Lieutenant-Governor, Secretary of State, Auditor, Treasurer, Attorney-General, and Superintendent of Public Instruction, each to hold office for two years. The Governor, Secretary of State, and Attorney-General constitute a Board of Pardons, and also a Board of State Prison Commissioners. The Governor has power to veto separate items of any appropriation bill. The Supreme Court shall consist of three justices, to be elected at large. Five judicial districts are provided; the judges to reside in and to be elected by the electors of their respective districts.

The distinctions between actions at law and suits in equity, and the forms of all actions and suits, are prohibited; and there shall be but one form of action for the enforcement or protection of private rights or the redress of private wrongs, which shall be denominated a civil action; and every action prosecuted by the people of the State as a party, against a person charged with a public offense, for the punishment of the same, shall be termed a criminal action. Feigned issues are prohibited, and the fact at issue shall be tried by order of court before a jury.

Absolute secrecy of the ballot is guaranteed. Six months' residence is required to become a qualified elector. Taxes for State purposes shall never exceed 10 mills on the dollar. When the assessed value reaches \$50,000,000, they shall not exceed 5 mills; and, at \$100,000,000, not more than 3 mills, with greater reduction as the assessment increases.

Women resident six months in the State may hold school offices and vote at school elections, as at present under Territorial law.

Persons practicing bigamy or polygamy, or encouraging or aiding such practices, or belonging to any organization supporting such practices, are disfranchised and made incapable of holding office.

No appropriation shall be made by the Legislature in excess of the revenue provided at the same time for paying such appropriation.

The Legislature shall not create any permanent debt, exclusive of the debt of the Territory, exceeding $1\frac{1}{2}$ per cent. of the assessed value of taxable property, unless for some special public object, and unless the proposed measure shall be submitted to the people and approved by them at a general election. There shall be a State Board of Equalization, consisting of the Governor, Secretary of State, Attorney-General, State Auditor, and State Treasurer, whose duties shall be prescribed by law.

No public money shall be appropriated in aid of any church, or for any sectarian or religious purpose, and no sectarian or religious doctrines shall be taught in the public schools.

The Governor, Superintendent of Public Instruction, Secretary of State, and Attorney-General, shall constitute the State Board of Land Commissioners, who shall have the direction, control, and disposition of the public lands of the State, under such regulations as may be prescribed by law.

The capital is located at Boise City for twenty years.

All railroads and express companies are declared common carriers, and subject to legislative regulations.

The provisions of the Interstate Commerce Act relative to discrimination in rates, facilities furnished, or character of service by railroads, are made a part of the Constitution.

No corporation shall issue stocks or bonds, except for labor done, services performed, or money or property actually received, and all fictitious increase of stock or indebtedness shall be void.

A Bureau of Immigration, Statistics, and Labor is established, and the Legislature may establish boards of arbitration to settle disputes between laborers and employers.

Not more than eight hours' actual work shall constitute a lawful day's work on State and municipal works.

The employment of children under the age of fourteen years in underground mines is prohibited.

The necessary use of lands for the construction of reservoirs, or storage basins, for the purposes of irrigation, or for rights of way for the construction of canals, ditches, flumes, or pipes, to convey water to the place of use, for any useful, beneficial, or necessary purpose, or for drainage; or for the drainage of mines, or the work-

ing thereof, by means of roads, railroads, tramways, cuts, tunnels, shafts, hoisting-works, dumps, or other means necessary to their complete development, or any other use necessary to the complete development of the material resources of the State, or the preservation of the health of its inhabitants, is declared to be a public use, and subject to the control of the State.

Amendments to the Constitution must be passed by a two-third vote of both houses of the Legislature, and ratified by a majority vote of the electors at the next general election. It was provided that the Constitution should be submitted to the people on the Tuesday following the first Monday of November. The vote cast at that time, being nearly equal to that cast for delegate in 1888, showed great interest in the statehood question. Out of a total of 14,184 votes, 12,398 were cast in favor of the proposed Constitution, and 1,773 against it. A petition asking for admission to the Union under this Constitution was later submitted to Congress.

ILLINOIS, a Western State; admitted to the Union in 1818; area, 56,650 square miles; population, according to the last decennial census (1880), 3,077,871; capital, Springfield.

Government.—The following were the State officers during the year: Governor, Joseph W. Fifer, Republican; Lieutenant-Governor, Lyman B. Ray; Secretary of State, Isaac N. Pearson; Auditor, Charles W. Parey; Treasurer, Charles Becker; Attorney-General, George Hunt; Superintendent of Public Instruction, Richard Edwards; Railroad and Warehouse Commissioners, John J. Rinaker, B. F. Marsh, and W. T. Johnson; Chief Justice of Supreme Court, Alfred M. Craig; Associate Justices, Benj. D. Magruder, Simcon P. Shope, David J. Baker, John Scholfield, Jacob W. Wilkin, and Joseph M. Bailey.

Finances.—For 1889 the levy for general State purposes was twenty-four cents on each \$100 valuation of taxable property, and for schools at fourteen cents, making a total of thirty-eight cents per \$100. The last levy made was at the rate of forty-four cents. The balance in the Treasury on Oct. 1, 1888, amounted to \$3,839,217.22. There was outstanding at that date a bonded debt of \$23,100, all of which had ceased to bear interest, and was payable on presentation of the bonds at the Treasurer's office.

Legislative Session.—The thirty-sixth General Assembly was in session from Jan. 9 to May 28. A caucus of Republican members on Jan. 10 nominated by acclamation United States Senator Shelby M. Cullom for re-election. One week later the Democratic members nominated Ex-Gov. Palmer. At a joint session of the two Houses on Jan. 23 Senator Cullom was re-elected.

A revision and codification of the public school law of the State was among the important acts of the session. A State Superintendent of Public Instruction stands at the head of the school system. In each county a superintendent is elected, who manages the school lands in the county, examines and grants certificates to teachers, conducts teachers' institutes, visits the various schools in his county, acts as adviser of local school officials, examines the accounts of township school treasurers, and is empowered to remove or overrule, for good cause, local school officials. In each township the school property is held and man-

aged by a board of three trustees, while a school treasurer has the custody of school funds. In townships of fewer than 1,000 inhabitants a board of three school directors, and in larger townships a board of education, conducts the local schools. A compulsory school law enacted at this session requires attendance by all children between seven and fourteen years of age for at least sixteen weeks of each year, eight weeks of which shall be consecutive.

The primary election law of 1885 was repealed, and a substitute adopted, which in its main features differs but little from the former act. Any political party may avail itself of the provisions of the law or not, at its option. Ten days' notice by publication is required for any election held under the act. Primary election districts are to be formed, containing not more than 800 voters of the party holding the election; the election shall be conducted by three judges of election and two clerks, for the choice of whom the act makes provision, and the polls shall be kept open from one o'clock to seven o'clock in the afternoon. When the vote of any person is challenged, he shall be sworn by the judges and questioned by them regarding the objection to his vote, and shall not be permitted to cast his ballot till he has signed a written statement under oath regarding the matter in dispute, and a person known to the judges has also signed a statement that he knows the person challenged and that his assertions are true. A fine of \$50 to \$200, or imprisonment for six months, or both, may be imposed upon any one who votes at the primary election of a party to which he does not belong, and in determining the politics of an accused person the court may receive evidence of his general reputation in this regard. The ballot of each voter is to be numbered, so that it may be identified as his. The usual penalties for fraudulent voting and for bribery are imposed.

Provision is made that twenty-five or more persons in each county who own collectively \$50,000 of property may join in forming a corporation for the purpose of mutual insurance against wind storms or tornadoes. Any person may become a member of the company by insuring his property therein, but not more than \$3,000 shall be in one risk. Assessments on all the insured shall be levied to pay losses.

The amendment to the State Constitution, adopted in 1888, providing for the establishment of savings banks, was found to be so informally drawn as to require considerable changes before procedure under it would be safe. The necessary changes were adopted by the Legislature, and will be submitted to the people.

Two acts passed in the interest of Chicago were the annexation act providing that cities and towns may unite and consolidate with each other when the citizens, at a special election, have voted in favor of such union, and the metropolitan drainage act providing for the organization of two or more incorporated cities, towns, or villages into a sanitary district for the purpose of obtaining a comprehensive system of drainage.

For each of the years 1889 and 1890 it was voted to raise by taxation \$1,700,000 for State expenses, and \$1,000,000 for schools. The Illinois Asylum for Insane Criminals was estab-

lished and located on the grounds of the Penitentiary at Chester. The sum of \$50,000 was appropriated for the construction and equipment of buildings to accommodate 150 patients. Each of the three hospitals for the insane—the Central, Northern, and Southern—received an appropriation of \$120,000 for an additional building to accommodate 300 patients. The sum of \$44,500 was appropriated for an additional building at the Asylum for Feeble-minded Children at Lincoln. The ordinary appropriations for the succeeding two years included \$1,374,200 annually for the expenses of the State government; \$958,000 for 1889, and \$1,023,000 for 1890 for expenses of State charitable institutions; and \$80,000 annually for expenses of the National Guard. Other acts of the session were as follow:

Prohibiting employment in the public service or on public works of aliens who have not declared their intention of becoming citizens, and requiring employers of labor that is paid for out of the public funds to file a certificate that no such persons are employed by them.

Appropriating \$6,000 for erection of a monument at Gettysburg where Illinois soldiers opened the battle.

Requiring bank directors to own at least ten shares in the stock of their bank.

Allowing the mother of a bastard child to release the reputed father, with consent of the county judge; or he may release himself without such consent on payment of \$400 to the mother.

Authorizing cities, towns, and villages to establish and maintain not more than two pleasure driveways.

Punishing the abduction and concealment of children under twelve years of age.

Requiring adulterated or imitation lard to be labeled "compound lard."

To prohibit the showing, giving, or selling to minors of papers devoted to criminal, police, or immoral news, or the public exhibition on any street or shop of such papers, or the hiring or employing of minors to sell or distribute such papers.

To punish the malicious removal of bearings, fixtures, or attachments from locomotives, tenders, or cars.

Creating the office of public guardian in each county, to be filled by appointment of the Governor every four years.

Authorizing cities and counties to contribute to the support of non-sectarian hospitals.

Establishing the State Historical Library, and providing for its maintenance.

Making additional regulations to secure more fully the health and safety of miners.

Providing for "short cause calendar" to expedite the trial of causes that will occupy not over one hour in the hearing thereof.

Requiring railroad companies to redeem drawback checks issued for overpayment of cash fare at any time within ten years after issue.

Repealing the act of 1887 ceding the locks and canals in the Illinois river to the United States.

Requiring the study in the public schools of physiology and hygiene, with reference to the effect of alcoholic beverages upon the human system.

Providing that when a mechanic, artisan, miner, laborer, servant, or employe brings suit and recovers judgment for wages due, a reasonable fee for his attorney shall be taxed with the costs of suit.

Corn Crop.—The area devoted to the corn crop for 1889, as returned to the State Board of Agriculture, is 6,988,267 acres, or 59,546 acres less than the area of 1888. The average yield per acre is a little more than thirty-five bushels, which is less than the average of 1888 by four bushels. The grand aggregate yield for the

State is 247,980,589 bushels, and the average price per bushel is twenty-four cents, making the total value of the crop for 1889, about \$59,515,341.36.

Valuations.—The total valuation of property in the State for 1889, as equalized and assessed by the State Board, was as follows:

ASSESSED IN COUNTIES.	
Personal	\$146,952,578
Lands	331,549,390
Lots	237,455,556
BY STATE BOARD.	
Railroad property	\$71,352,455
Capital stock	13,431,629
Total	\$800,771,626

The total equalized value of property assessed for 1888 was \$784,911,874, the excess of 1889 over 1888 being \$15,859,752.

In 1888, 9,004 miles of main railroad tracks were assessed; in 1889, 9,074 miles.

The assessed value of railroads in 1888 was \$68,799,061. The number of horses assessed for 1889 in the State is 1,055,474, valued at \$25,549,040, an average of \$24.21; 2,448,262 cattle are returned and valued at \$16,137,936, an average of \$6.59; 88,245 mules and asses are valued at \$2,042,920, an average of \$27.23; 546,496 sheep, \$534,241, an average of 98 cents; 2,172,332 hogs, \$3,294,587, an average of \$1.52; 7,893 steam engines, including boilers, \$1,232,348; 8,737 fire and burglar proof safes, \$228,034; 401,768 carriages and wagons, \$4,059,194; 314,509 watches and clocks, \$714,237; 218,112 sewing and knitting machines, \$988,423; 33,546 pianos, \$1,241,029, or an average of \$37 each; 52,352 melodions and organs, \$614,470; 642 steamboats, sailing vessels, etc., \$156,231. The merchandise of the State is assessed at \$25,555,028; material and manufactured articles are valued at \$2,339,543; manufacturers' tools, implements and machinery, \$2,651,502; agricultural tools, implements, and machinery, \$3,256,420; gold and silver plate and plated ware, \$52,053; diamonds and jewelry, \$47,415; moneys of bank, bankers, brokers, etc., \$2,813,049; credits of bank, bankers, brokers, etc., \$1,057,055; moneys of other than bankers, etc., \$9,516,138; credits of other than bankers, etc., \$11,214,988; bonds and stocks, \$489,080; shares of capital stock of companies not of this State, \$281,521; pawnbrokers' property, \$12,687; property of corporations not before enumerated, \$1,155,348; household and office property, \$10,924,512; investments in real estate and improvements thereon, \$256,863; grain of all kinds, \$3,526,280; shares of stock of State and national banks, \$7,592,489; all other personal property, \$2,289,571.

The assessment of Cook County (the city of Chicago) as fixed by the local assessors and revised by the State Board of Equalization is as follows:

PROPERTY.	Assessed.	Equalized.
Personal property	\$28,244,958	\$45,191,833
Lands	10,699,126	18,616,479
Lots	126,795,669	158,494,586
Total	\$165,739,753	\$222,302,998

Farm Mortgages.—From the report of the State Bureau of Labor Statistics, made this year, it appears that the total mortgage indebtedness

of Illinois farms is \$123,733,098. Of this sum \$20,633,072 is for deferred payments on the purchase money. The indebtedness for loans is only 10.52 per cent. on the census valuation of 1880, and the average rate of interest 6.90 per cent. per annum. Only about 7 per cent of these mortgages are given to non-residents, and these are scattered through thirty-five States and twelve foreign countries. Most of the mortgages are to building and loan associations.

Coal.—The reports of the various mine inspectors for the year ending July 1, 1889, show that coal was mined in 49 counties, from 854 mines of all kinds. The new mines opened numbered 123, and 106 were closed during the year. Of the 854 openings, 321 are simply local openings, with less than 1,000 tons annual output, and 316 more only rise to a product ranging from 1,000 to 10,000 tons, while 217 only are of the better class of mines. The 217 mines of greater importance contribute 10,466,497 tons, or 90 per cent. of the whole supply of fuel, and the remaining 637 places, delivering less than 10,000 tons per annum, average only 1,800 tons each. Separating all mines into two classes, those engaged in shipping coal and those that simply supply fuel for local consumption, there are found 332 of the former and 522 of the latter. The total output in the State in 1889 was 11,597,963 tons, which was less by 257,225 tons than that of 1888. The average value of the product has dropped from \$1.12½ to \$1.07¼ a ton; the average number of days of active operations has fallen from 220 to 211; the price of hand mining for the State at large is found to have slightly increased, and the number of fatal accidents has materially diminished, there being only 42 during the year. The number of employes of all kinds was 30,076, of whom 23,583 were miners. There were 859 boys employed underground.

Labor Troubles.—On Jan. 19, 1889, 2,000 coal miners employed by the Spring Valley Coal Company went out on a strike on account of the employment of a man who refused to abide by the miners' agreement to work but a limited time, so that all the miners might have a chance to earn a living. The strike continued till Jan. 28, when the strikers yielded, and work was resumed in the mines Feb. 1. On May 1, another strike was begun in the Spring Valley and La Salle mines and in northern Illinois, against a reduction of wages. The Chicago Zouaves and Company C of the Fourth Regiment were ordered to Braidwood, on May 27, to preserve order. Two members of the State Board of Charities were sent by the Governor to Northern Illinois to investigate the difficulties. They found that under the former prices the miners averaged only \$31.62 a month, while under the reduced scale they would average but \$28.09. In the existing state of the coal trade, however, they advised the miners to accept a reduction, but their efforts to secure an agreement were unsuccessful. The strike was not ended until late in September, when the miners were obliged to yield. Much suffering was caused by these strikes. So great was the destitution at Spring Valley that early in September it was called to the attention of the Governor in a memorial from citizens interested, and he ordered the adjutant-general to make an immediate investigation.

The latter reported late in September that the accounts of suffering had been exaggerated, but that there was still much need of charitable work. There were then at that place about 250 idle miners. Since May 29 the miners' relief committee had assisted 405 families numbering about 1,704 persons, and had distributed about \$2,000 in money and \$8,000 worth of provisions.

Canals.—The report of the State Canal Commissioners for the year ending Oct. 30 shows the receipts from the State canals to be \$96,696.21, and from dockage in Henry and Copperas creek, \$4,277.30, total, \$100,973.51: making the total resources at that date, including amount on hand, \$164,298.64. The disbursements of the year were \$90,188, leaving a balance of \$74,110.64. All expenses were paid by the earnings of the river and canal.

Chicago.—This is now the second city of the United States; it has a population of over 1,200,000 and an area of about 150 square miles. The increase in area and population is due to the annexation in the summer of 1889, of the suburban towns of Hyde Park, Lake, Lake View, and parts of Jefferson and Cicero. The annexation was accomplished by a local election in June, provided for by an act of the Legislature, when the annexationists carried the day by a sweeping majority, and the various town organizations became merged in the city government. There are 22 railroad lines centering in Chicago. An important election was held on Dec. 12, 1889, by which a Drainage Commission was chosen, constituting a board of nine trustees, who are to hold office for six years and superintend the work of altering the city's sewage system, besides formulating a plan of taxation for the raising of the necessary funds. The city sewage, which now largely flows into Lake Michigan, is to be directed from the Chicago river into the Illinois, and thence into the Mississippi. By this means it is hoped adequate drainage will be assured. The project received the approval of the Legislature in a bill passed at its last session. The new breakwater, with which the harbor has recently been improved, was erected by the National Government at a cost of \$1,000,000, and under the provisions of a bill passed by Congress in 1888, extensive repairs were made upon it during that year, materially increasing its strength and usefulness. The river and its branches now have an improved water frontage of 30 miles, and the result is a steady increase in the volume of shipping. A change of management in the Northside street-car system resulted in an introduction of the cable system in that division, and in the summer of 1889 the new corporation began laying the groundwork for cable traffic on the west side. Several companies with projects for transit by elevated roads were granted licenses by the Secretary of State. Chicago has 14 national banks, with resources aggregating \$96,000,000; surplus and capital stock, \$15,000,000; deposits, \$67,000,000. The other commercial banks aggregate about \$12,500,000 in capital, and have deposits somewhat in excess of that amount. In 1889 there were more than 350 churches in Chicago, an increase of 100 within a dozen years, and several new ones are in course of construction. Extensions have been made to the county hospital, which can now accommodate

date 1,000 patients. The county court-house and city hall, built of granite and marble, at a cost of \$3,000,000 each, have been completed. In the neighborhood of the mammoth new Board of Trade building, which was completed in 1885 at a cost of \$1,700,000, 24 great office buildings have risen, some of them 13 stories high. The Tacoma is the tallest, and the Rookery the most elaborate and massive in its interior arrangements. The old Board of Trade building—at Washington and La Salle Streets—has been built up until it now towers alongside the Tacoma. But the most remarkable building in Chicago is the Auditorium, on Michigan Avenue, Congress Street, and Wabash Avenue. It was completed in the winter of 1889, and the great opera house, which is its main feature, was dedicated Dec. 9 of that year, with President Harrison in attendance, and Adelina Patti as the star of the occasion. It took three years to construct the building, which cost \$2,700,000. The value of the ground on which it stands is \$1,000,000. The opera house will seat 4,500 persons, and is said to be the most complete in the world. It was in the Auditorium that Gen. Harrison was nominated for the presidency in 1888, the theatre having been completed long before the rest of the structure. The value of property in Chicago for taxation in 1885 was \$293,188,950; the tax levied thereon, \$5,123,905; and the bonded debt of the city, \$13,456,000. In 1885 the valuation of property aggregated \$139,958,288, the tax, \$5,152,515, and the debt, \$12,695,500. Ten per cent. may be added to these figures to estimate the present ones. The total value of dutiable goods imported in 1885 was \$8,624,117. Chicago has 29 grain elevators, with a united capacity of 27,025,000 bushels. At the stock yards there are more than 40 meat-packing firms which, in the year ending March 1, 1886, packed 4,928,730 hogs—half of the pork-packing product of the Mississippi valley. The total value of the live-stock receipts at the stock yards in 1885 was \$173,598,002, the arrivals of animals averaging 600 carloads a day. In 1888 there was a large increase over this average. The stock yards—which constitute the largest industry of Chicago—cover 350 acres, three quarters of which are roofed. More than 25,000 men have employment the year round in this neighborhood. Within the past few years great strides have been made in the dressed-beef industry, the number of cattle slaughtered for the refrigerator-car trade being about 4,000 daily. The entire annual value of manufactured products is nearly \$400,000,000. Chicago has more than 60 public schools, occupying nearly 90 buildings and employing 1,200 teachers. The number of pupils is between 76,000 and 78,000, and the annual expenditure \$1,600,000, \$1,000,000 of which goes to teachers. There are 3 high schools, besides those in Hyde Park and Lake View. About 400 newspapers and periodicals, 8 of which are daily, are published.

INDIA, an empire in southern Asia, subject to Great Britain. The Secretary of State for India is a member of the British Cabinet, under whose supervision the executive powers are exercised by the Governor-General, or Viceroy, who is assisted by a council of six ordinary members who preside over the departments of Foreign Affairs, Finances, the Interior, Military Adminis-

tration, and Public Works, and of the commander-in-chief of the forces, who is a member of the Council by virtue of his office. For framing laws and regulations the Governor-General names from six to twelve additional members, who constitute, with the ordinary members of the Council of the Governor-General, a Legislative Council, the proceedings of which are public. The six ordinary members of the Governor-General's Council and the Governors of Bombay and Madras are, like the Governor-General, appointed by the Crown, while other officials are appointed by the Governor-General, subject to the approval of the Secretary of State. The Governors of Bombay and Madras have each two councils, and the Lieutenant-Governors of Bengal and the Northwest Provinces have each a legislative council. The provinces are divided into districts, which are under the entire control of collector-magistrates or deputy commissioners, who have under them joint magistrates, assistant magistrates, deputy collectors, and other officials, and are themselves responsible to commissioners where the districts are grouped into divisions, and elsewhere directly to the governor or chief commissioner of the province. In the native or feudatory states the government is carried on by the native princes and their functionaries under the control of British political residents or agents. The present Governor-General is the Marquis of Lansdowne, who succeeded the Marquis of Dufferin Dec. 11, 1888.

Area and Population.—The area of the political divisions under direct British rule, and their population according to the census of 1881 are as follow:

PROVINCES.	Square miles.	Population.
Under the Governor-General:		
Ajmere	2,711	460,722
Berar	17,711	2,672,673
Coorg	1,533	178,312
Under Governors:		
Madras	141,001	31,170,631
Bombay and Sindh	124,122	16,454,414
Under Lieutenant-Governors:		
Bengal	150,588	66,691,456
Northwest Provinces and Oudh ..	106,111	44,107,869
Punjab	106,632	18,550,437
Under Chief Commissioners:		
Assam	46,341	4,881,426
British Burmah	87,220	3,736,771
Central Provinces	84,445	9,888,791
Total British territory	868,465	199,043,492

The area and population of the native states are given in the following table:

STATES.	Square miles.	Population.
Baroda	8,570	2,185,005
Central Indian Agency	75,079	9,261,907
Hyderabad	71,771	9,345,594
Mysore	24,723	4,186,188
Rajputana Agency	129,750	10,268,392
Cashmere	80,900	1,534,972
Manipur	8,000	221,070
Bengal	36,634	3,001,436
Northwest Provinces	5,125	2,345,405
Punjab	35,817	741,750
Central Provinces	28,834	3,861,633
Madras	8,091	1,709,720
Bombay	73,753	6,941,249
Total native states	587,047	56,604,371

In the Central Indian Agency there are 82 separate states; in the Rajputana Agency, 20; in

Bengal, 4; in the Northwest Provinces, 2; in the Punjab, 36; in the Central Provinces, 15; in Madras, 5; in Bombay, 20; making the total number of tributary states, 189. The death rate for British India has ranged in recent years between 20·98 per 1,000 in 1880 to 28·40, which was the rate in 1878. The ratio in 1885 was 22·74 in Bengal, 31·98 in the Northwest Provinces, 26·91 in the Punjab, 34·21 in the Central Provinces, 36·07 in Berar, 19·89 in British Burmah, 27·91 in Assam, 21·8 in Madras, 28·78 in Bombay, 15·91 in Mysore, and 16·57 in Coorg.

The population of India in 1888 was estimated at 269,477,728, of which 60,684,378 belonged to native states. The average density of population was 185 to the square mile, being greatest in Bengal, where it was 443, the Northwest Provinces and Oudh coming next with 416, and then the native states of the Central Provinces with 255; while Burmah, the Bengal native states, and those of the Northwest Provinces and Bombay were the least densely populated. The population of Upper Burmah is estimated at 3,000,000, and that of the Shan states at 2,000,000. The Hindu population of India is about 81,000,000; Mohammedans, 81,000,000; aborigines or nature-worshippers, 6,500,000; Buddhists, 3,500,000; Christians, nearly 2,000,000; Sikhs, nearly 2,000,000; Jains, 1,250,000; Parsees, Jews, and others are comparatively very few. Of the Christian population nearly 1,000,000 are Roman Catholics, 360,000 are adherents of the Church of England, and 178,000 belong to other Protestant denominations. There are also 300,000 Armenians, Syrians, and Greeks, residing mainly at Travancore. The British-born population is given as 89,798; of whom 12,610 are females. Of the non-official population of British birth the most numerous classes are merchants and clerks, who number 886, the next being planters, 541 in number, and after them the civil engineers, physicians, land owners, and missionaries, the last named numbering 178. Of the British-born population 52,240 are between twenty and thirty years of age, and 20,052 between thirty and forty.

The returns for several years past show a progressive increase in grave crimes, such as murder, gang-robbery, burglary, and cattle stealing. In 1887 there were 2,155 murders, 25,890 other serious crimes against the person, 103,462 burglaries, and 27,827 gang-robberies. These statistics do not include the crimes in Upper Burmah. Some attribute the growth of crime in India to the spread of education, others to ideas of political liberty, and still others to the worthlessness of the police.

Education.—There are 106,000,000 males and 111,000,000 females in India who are neither under instruction nor able to read or write. Only 11·8 per cent. of the children of school age are found in the schools. Among girls the proportion is only 1·8 per cent. The students at the universities, of which there are five, numbered 13,189 in 1888, and among them there were 17 girls. The pupils at secondary schools numbered 441,876, or 3 per cent. more than in 1887. Of technical schools in India there are 14 devoted to medicine, 15 to engineering and surveying, 4 to art, and 73 to industrial education. The most important industrial schools are at-

tached to the workshops of the great railroads. On March 31, 1888, there were 3,460,844 pupils registered in the schools and colleges, compared with 3,343,544 in 1887. The numbers attending school in 1888 was 2,970,850 at public, and 439,123 at private institutions. At the training schools the numbers declined from 5,716 in 1887 to 4,761 in 1888, while at other special schools there was the slight increase from 11,215 to 11,511. The number of Hindus receiving instruction in 1888 was 2,365,792, as compared with 2,303,812 in 1887; the number of Mohammedans increased from 752,441 to 804,485; Europeans and Eurasians diminished from 23,185 to 23,160; native Christians increased from 60,611 to 74,498; and of other classes there were 203,121, as compared with 192,314. The total expenditure of the Government on education rose from Rx 2,524,141 in 1887 to Rx 2,619,128 in 1888, and receipts from school fees from Rx 652,995 to Rx 729,409.

Finance.—The final accounts for the fiscal year ending March 31, 1888, make the total ordinary receipts Rx 78,759,740. (The depreciation of silver is so great, being nearly 33½ per cent. in Indian exchange, that tens of rupees can no longer be reckoned, even approximately, as equivalent to pounds sterling.) The total ordinary expenditures were Rx 80,788,576, leaving a deficit of Rx 2,028,836. The receipts in England were Rx 370,741, and the expenditures in England Rx 21,855,698. The extraordinary expenditures amounted to Rx 10,585,030. Of the receipts Rx 23,189,292 came from land revenue, Rx 8,515,462 from the opium monopoly, Rx 6,670,728 from the monopoly of salt, Rx 3,876,298 from stamps, Rx 4,534,655 from excise, Rx 3,035,323 from provincial taxes, Rx 1,348,837 from customs, Rx 1,431,436 from licenses, Rx 1,124,125 from forests, Rx 311,253 from registration, Rx 743,597 from tributes, Rx 746,555 from interest, Rx 2,229,546 from posts, telegraphs, and mint, Rx 571,850 from legislation and justice, Rx 350,293 from police, Rx 195,027 from shipping, Rx 378,572 from public instruction, Rx 16,839,972 from railroads, irrigation, roads, and public buildings, Rx 1,060,815 from military services, and Rx 1,606,108 from miscellaneous sources. Of the total ordinary expenditures Rx 5,441,754 were for interest on the debt, Rx 1,692,945 for refunds and compensations, Rx 7,745,218 for collection of revenue, Rx 2,255,829 for the post-office, telegraphs, and mint, Rx 1,769,935 for civil departments, Rx 3,422,923 for legislation and justice, Rx 3,693,621 for police, Rx 670,845 for marine services, Rx 1,740,313 for public instruction, Rx 684,660 for foreign affairs, Rx 924,067 for ecclesiastical and medical affairs, Rx 3,891,067 for pensions and charity, Rx 870,063 for printing, etc., Rx 91,408 for famine relief, Rx 20,873,951 for the army, Rx 24,649,386 for public works, and Rx 370,591 for various purposes.

For 1888-'89 the total receipts from ordinary sources were estimated at Rx 80,010,500, and the expenditures at Rx 80,708,500. The fall of the rupee was not so great, however, as was expected, and in the closed accounts the deficit disappears. An improvement in the salt, opium, and land revenues, a slight recovery in the rate of exchange, and economies in the civil departments enable the Government to predict a surplus of

Rx 693,610 for 1889-'90. The increase in receipts from salt are owing to importations that were delayed because dealers expected the rate of duty to be lowered. Many expected that raising the salt duty by 25 per cent. in January, 1888, would cause a great falling off in the consumption of salt; but, except in Burmah, the quantity consumed in 1888-'89 was very nearly the same as in 1887-'88. In Burmah, where the duty was increased fivefold, the consumption fell off to less than one sixth of what it was in the preceding year. The opium revenue has declined from Rx 8,500,000 in 1881 to Rx 6,000,000 in 1888, owing mainly to the fall in price in China through the competition of the Chinese drug and to the increase in the Chinese import duties by the Chefoo convention. Formerly the Chinese import duty was 95 rupees per chest, and traders were often able to evade payment of the inland transit dues. By the Chefoo convention these inland dues were commuted for a sum of 253 rupees per chest, payable at the port of entry with the import duty. The average price of opium has fallen from 1,850 rupees in 1861 to 1,060 rupees in 1888. Even at the latter price the Government monopoly makes an enormous profit, as the cost of a chest is only 380 rupees. Of the total exports in 1888 no less than 84½ per cent. went to China. On opium grown in native states a duty of 650 rupees is paid to the Indian Government on its introduction into British territory. The loss by exchange to the Indian revenue of 1889-'90 is reckoned at Rx 7,059,000. The Indian treasury receives a large surplus revenue from the administration of justice, and yet the courts, especially in Bengal, are scandalously insufficient and poorly appointed.

The provincial administrations now receive 26½ per cent. of the whole revenue of British India, and spend 36½ per cent. of the Indian expenditure. They have the duty of collecting the revenue except that from salt and opium, and they control the expenditure on the administration of justice, schools, jails, and medical sanitary works, and on the greater part of the irrigation works and the whole of the roads and bridges. Every province retains three fourths of the stamp revenue, one fourth of the excise revenue, all of the original provincial rates, one half of the revenue derived from assessed taxes, forests, and registration, and a varying percentage of the land revenue, ranging from 22 per cent. in the western provinces to 58½ per cent. in Bombay. The Central Imperial Government restricts its expenditure to such matters as interest on the public debt, the army, opium, the post-office, telegraphs, the greater part of the railroads, and all the military works. The railroads, however beneficial to the country they may be, cause an annual loss to the Indian Government of about Rx 2,250,000.

The famine insurance or relief fund was instituted in 1878, when the Government promised to raise £1,500,000 annually as an insurance against famine and invest or apply it for that purpose only. New taxes were imposed for the express object of raising this fund, yet it has been used for purposes of war and annexation, and only during the administration of Lord Ripon was it applied to famine-relief works. Of £16,500,000 raised for famine insurance in eleven years only

Rx 2,631,750 were given for the relief of famine during that period. The cost of the new frontier defenses on the northwest has been between Rx 7,000,000, and Rx 8,000,000, and before they are completed will probably rise to Rx 13,000,000. The total expenditure on that frontier has been Rx 20,000,000, while the conquest of Burmah has cost India more than Rx 9,000,000.

The public debt on March 31, 1888, amounted to £191,945,844. The capital of the consolidated debt was £182,230,010, of which £98,089,862 were payable in India in rupees and £84,140,148 in gold in England. In 1889 the 4-per-cent. debt, amounting to Rx 53,261,820, was converted to 3½-per-cent. stock, effecting an annual saving to the revenues of £266,300. A conversion of a part of 4½ per cent. was accomplished in 1889-'90, the interest being reduced to 4 per cent. Under an act of Parliament passed in 1888 the sum of £3,500,000 was borrowed by the Government at 3 per cent., and turned over to companies for the construction of railroads.

The Army.—The regular British troops garrisoned in India, according to the army estimates of 1889-'90, number 72,424 officers and men, comprising 53 battalions of infantry, with 53,595 men; 9 regiments of cavalry, with 5,661 men; 88 batteries of artillery, with 12,735 men; 350 officers of engineers; and 83 administrative troops. The native army in 1887 numbered 1,687 officers and 132,805 non-commissioned officers and privates, and the European army 3,720 officers and 69,862 non-commissioned officers and privates, making the total strength of the British forces in that year 208,074 of all ranks. The native troops comprised 103,492 infantry, 23,455 cavalry, 3,847 sappers and miners, 3,219 artillery, and the Viceroy's body guard of 201 men. The volunteer corps, composed of Europeans, Eurasians, natives who joined the British volunteers while studying in English universities, and other natives in such outposts as Quetta, on March 31, 1888, numbered 21,200 men; but of these not more than 12,000 or 13,000 are trained to arms. They are armed with Martini-Henry rifles. The railroad employes of European origin are uniformly organized in volunteer military associations, which have sometimes performed important services in guarding railroad property and checking disturbances in districts devoid of troops and police. The Indian military police, which is commanded by British officers, numbers about 200,000 men. The armies of the native chiefs have an aggregate strength of over 325,000. The military scheme for the employment of troops of the feudatory states for the defense of the Indian frontiers is being developed. The Government has undertaken to discipline and train for modern warfare 5,000 troops set apart from the army of the Nizam of Hyderabad, to organize and drill in the same manner the force of 2,000 men offered by Gwalior, and will train eventually contingents from the other states, thus obtaining a reserve force of 30,000 disciplined troops that can, if necessary, be largely and speedily augmented. These reserve corps are being equipped with breech-loaders and carbines, and provided with instructors under the direction of a special inspector-general and his staff. There were 13,400 men, including 3,700 cavalry, under the instruction of English officers

in the autumn of 1889. The British troops of Bombay and Madras, which have had an independent organization heretofore, are shortly to be united with the Indian army under the direction of the Government of India.

Commerce.—The total value of merchandise imports for the year 1887-'88 was Rx 65,005,000, against Rx 61,777,000 in 1886-'87, and the value of exports of Indian produce was Rx 86,422,000, against Rx 84,937,000. Included in these totals is the trade across the land frontiers, consisting in 1887-'88 of Rx 3,750,000 of imports and Rx 4,750,000 of exports. The imports of textile manufactures in 1888 was Rx 31,280,000, against Rx 32,361,000 in the previous year, while the value of other manufactured articles increased from Rx 15,562,000 to Rx 18,119,000. On the side of exports there was an increase in cotton, jute, and other textile materials from Rx 19,895,000 to Rx 22,037,000, and in yarns from Rx 6,140,000 to Rx 7,759,000. The grain exports fell off from Rx 18,239,000 to Rx 15,777,000. The exports of colonial products, including tea and coffee, increased from Rx 7,467,000 to Rx 7,821,000, seeds from Rx 9,245,000 to Rx 9,452,000, and those of drugs, oils, and gums from Rx 5,679,000 to Rx 6,293,000, while the exports of hides and leather declined from Rx 5,203,000 to Rx 4,910,000, and opium from Rx 11,078,000 to Rx 10,068,000. The imports of treasure in 1888 were Rx 13,826,000, against Rx 11,053,000 in 1887, and the exports were Rx 1,605,000, against Rx 1,721,000.

The trade with Great Britain is represented by Rx 49,042,487 of the imports, and Rx 33,042,487 of the exports; China and Hong-Kong by Rx 2,415,135 of imports and Rx 12,954,095 of exports; France by Rx 849,016 of imports and Rx 7,167,847 of exports; the Straits Settlements by Rx 2,119,599 of imports and Rx 3,823,814 of exports; Italy by Rx 370,993 of imports and Rx 4,505,246 of exports; the United States by Rx 2,119,599 of imports and Rx 3,722,059 of exports; Austria by Rx 770,932 of imports and Rx 2,722,048 of exports; Belgium by Rx 304,643 of imports and Rx 3,161,552 of exports; Egypt by Rx 72,406 of imports and Rx 3,202,598 of exports; Ceylon by Rx 633,599 of imports and Rx 1,983,215 of exports; Mauritius by Rx 1,550,373 of imports and Rx 1,011,555 of exports; Australia by Rx 484,809 of imports and Rx 1,110,872 of exports; Germany by Rx 194,492 of imports and Rx 1,014,889 of exports.

The aggregate value of the foreign trade in 1888-'89 was Rx 179,095,000, an increase of 16½ per cent. over the total for 1887-'88. The average total value for the five years ending with 1889 was Rx 162,288,750, and for the five years preceding Rx 139,915,000. The average excess of exports over imports for ten years has been Rx 16,870,000, including treasure. The increase in the import trade in 1889 was due almost entirely to yarn and cotton piece goods. The increase in exports was spread over all the principal staples, the largest increase being 30¼ per cent. in jute, which was followed by jute manufactures, cotton manufactures, and coffee. The values of the leading exports were as follow: Grain and pulse, Rx 15,943,300; raw cotton, Rx 15,045,000; opium, Rx 10,690,000; seeds, Rx 9,560,000; raw jute, Rx 7,897,500; cotton

manufactures, Rx 6,375,000. The net import of gold in 1889 was Rx 2,813,300, and of silver Rx 9,246,600. Since 1834 it is estimated that £442,000,000 of the precious metals have been absorbed by India. In the last thirty years, £113,250,000 of gold and £227,000,000 of silver have been received and retained.

The values of the principal articles of merchandise imported on private account in 1887-'88, were as follow, in tens of rupees:

IMPORTS.	Value.
Cotton manufactures	27,506,373
Metals, hardware, and cutlery	6,407,022
Silk, raw and manufactured	2,918,138
Railroad iron and rolling-stock	2,577,602
Sugar	2,113,617
Machinery and mill-work	1,800,217
Woolen manufactures	1,715,755
Coal	1,663,910
Provisions	1,504,496
Liquors	1,487,066
Oils	1,486,791
Apparel (exclusive of hosiery)	1,276,628
Spices	981,517
Salt	795,520
Glass	578,958
Drugs	439,649
Paper	418,307
Umbrellas	371,300
Grain	10,772
All other articles	6,201,235
Total	62,384,813

The values, in tens of rupees, of the specific exports, the produce of India only, in the year 1887-'88 are given in the following table:

EXPORTS.	Value.
Grain and pulse	15,540,472
Cotton, raw	14,412,841
Opium	10,067,763
Oil seeds and other seeds	9,385,024
Jute, raw	6,040,378
Cotton manufactures	5,227,923
Tea	5,174,440
Hides and skins	4,852,381
Indigo	3,890,649
Jute manufactures	1,746,360
Coffee	1,529,680
Wool	972,346
Spices	521,567
Lac	501,267
Silk, raw, and cocoons	450,510
Oils	471,055
Wood and manufactures of wood	466,808
Sugar, raw and refined	465,828
Silk manufactures	379,296
All other articles	4,243,138
Total	62,384,813

Partial returns for 363,594,805 acres out of 500,142,639, which is the total area of British India as ascertained by surveys, show that in 1887 there were 152,316,260 acres cultivated, including 22,999,983 acres of fallow land, 43,232,140 acres were under Government forests or forests administered under the forestry act, and 166,820,451 acres were uncultivated, of which 79,434,487 acres were suitable for cultivation. The area devoted to rice was 60,971,764 acres; to wheat, 19,156,870 acres; to other food grains, 80,504,030 acres; to cotton, jute, and other fibers, 11,591,716 acres; to oil seeds, 9,594,040 acres; to indigo, 2,112,792 acres; to sugar-cane, 1,971,793 acres; to all other crops, including tea and coffee, 10,903,605 acres; total cultivated area (according to provincial returns), 184,612,259 acres. The irrigated area is 24,250,000 acres. Of the wheat lands more than 5,600,000 acres are irrigated; of other cereals and pulse, 14,007,000 acres; of other food crops, 1,619,000; of other crops, 3,024,000 acres. Most

of the irrigation works are unprofitable. Their total cost to the end of 1887 was reported to have been Rs 23,770,346. They entail an annual loss to the Indian Treasury of about Rs 725,400. The returns of agricultural live stock for 1887 (except for Bengal, the Central Provinces, and Assam, which comprise 38 per cent. of the cultivated area of British India) are: Cows and bullocks, 35,677,081; buffaloes, 9,258,564; horses and ponies, 909,412; mules and donkeys, 941,563; sheep and goats, 25,571,588.

The crop reports for 1888-'89 state that the wheat harvest in the Punjab exceeded that of the previous year by $6\frac{1}{2}$ per cent., and that in Seinde there was an increase of 9 per cent., but that in the Central Provinces and in the North-west Provinces and Oudh the yield fell below that of 1887-'88 by 23 per cent.

The area devoted to wheat culture in 1889-'90 is estimated at from 26,000,000 to 27,000,000 acres. The total exports for five years show an annual average of 18,729,851 hundred-weight. The wheat trade has suffered from the carelessness of native cultivators in growing and gathering the crops. Indian wheat has always reached the European market with an admixture of, at least, 5 per cent. of seeds and dirt and with a large percentage of white wheat mixed with the red, and of red wheat in the white. Dealings in Indian wheat have been made under a form of contract requiring that deliveries shall be of the fair average quality of all shipments received from India during the same month. Since buying by sample was impossible, dealers on receiving a lot grown and prepared for market with unusual care have invariably mixed dirt with it to bring it down to the average. It thus became more profitable to the ryots to send off wheat dirty than to clean it. In 1889 the matter was discussed in English newspapers and commercial bodies, and some of the trade associations adopted a new rule by which a higher price is given for Indian wheat containing not more than 2 per cent. of impurities.

At the end of 1888-'89 there were 124 cotton mills in operation in India, with 21,561 looms and 2,762,518 spindles. They consumed 3,110,289 hundred-weight of raw cotton, and gave employment to 91,598 persons. The capital invested was nearly £10,000,000. Of the 124 mills 91 were in the Bombay Presidency, where in 1870 there were only 7 mills. The area under cotton in the beginning of 1888 was 14,532,513 acres, of which about 5,500,000 were in Bombay and Seinde. There were 4 woolen mills in India in 1888, with 263 looms and 6,868 spindles. Since 1879 the number of cotton mills has increased 121 per cent., the spindles 90 per cent., the looms 65 per cent., the number of operatives 113 per cent., and the quantity of cotton used 232 per cent. China and Japan take seven eighths of the total export of cotton yarns. The cotton yarns and twists of Bombay affect injuriously the exports of Lancashire factories to those countries, and the Indian Government has been requested to curtail the extraordinary hours of labor in the Indian mills. The people of India, on the other hand, have asked for the repeal of the British duty on silver plate and the abolition of hall-marks in order to promote the export of Indian silversmiths' work to Great Britain. The

importation of sugar has increased in recent years, while the exportation has decreased, owing to the competition of beet sugar in Europe. The exportation of tea has made great strides, Indian tea, grown mostly in Assam, having supplanted Chinese tea in the English market. Mineral oil has become an important item in the trade returns. Umbrellas are very largely imported, both from England and from China.

The development of the foreign trade of India has been comparatively greater with other countries than with Great Britain, and Indian commodities have come into competition with British in certain markets. Especially have the exports to China, Japan, and eastern Africa largely increased. The value of the Indian trade carried through the Suez Canal steadily advances. In 1888-'89 it amounted to 68 per cent. of the whole, 80 per cent. of the imports and $58\frac{1}{4}$ per cent. of the exports passing through the canal. The trade with Great Britain was $74\frac{1}{2}$ per cent. of the total, France coming next with $7\frac{1}{4}$ per cent.

Navigation.—The total number of vessels entered at the ports of India in 1887-'88 was 5,308, of 3,514,214 tons; the number cleared was 5,585, of 3,675,251 tons. Of the vessels entered 1,898, of 2,823,712 tons, belonged to Great Britain; 1,043, of 136,968 tons, to British India; 1,627, of 83,311 tons, to native states; and 740, of 470,223 tons, to foreign countries. The number of steam vessels arriving by way of the Suez Canal in 1887-'88 was 949, of 1,637,738 tons. The number of coasting vessels entered in 1887-'88 was 120,269, of 9,021,633 tons; the number cleared was 106,756, of 8,899,906 tons.

Railroads.—There are five great trunk lines of railroad belonging to companies subsidized and guaranteed by the Government. These are the Great Indian Peninsula, the Madras, the Oudh and Rohileund, the Bombay, Baroda, and Central Indian, and the South Indian lines. The state has built subsidiary lines as feeders for these and others for famine relief, as well as strategic railroads. Of 14,059 miles built before the close of the year 1887-'88, in which £186,000,000 of capital were invested, 6,368 miles earned more than 5 per cent., 2,386 miles between 3 and 5 per cent., and 5,305 miles failed to earn 3 per cent. The passenger receipts for 1888 showed an improvement of 8.12 per cent., and the freight receipts were 10.88 per cent., more than in 1887. There were 15,245 miles completed at the end of 1888-'89, the chief sections opened during the year having been 110 miles on the Bengal and Nagpore line, 303 miles on the Indian Midland, and 222 miles on the Burman line. The gross receipts in 1888-'89 amounted to Rs 19,764,475 and the expenses to Rs 9,874,347. There were 103,156,013 passengers carried, against 95,411,779 in the previous year. The wheat carried has increased in two years from 964,428 to 1,175,231 tons. In 1887 the Government purchased the East Indian line at a large advance on the cost. In 1884 it was announced that there would be no more guarantees or subsidies, and that private enterprise could be relied on to complete the system of economic railroads. The Bengal and North-western Railroad, which was built without state assistance, earned $3\frac{1}{4}$ per cent. on invested capital in 1888, the second year of its operation. Since

the guaranteed companies have all the arterial routes, and new roads can only serve as their feeders, there is little encouragement to private enterprise. In 1889 the Government felt compelled to return to the guarantee system or to adopt the system of land grants. In treating with a syndicate for the construction of a line from Chittagong to East Bengal it was proposed to subsidize it with 3,000 square miles of land, with exclusive rights to prospect for gold or petroleum. The length of guaranteed lines at the close of 1887-'88 was 3,911 miles; of assisted lines, 653 miles; of imperial state lines, 7,455 miles; of provincial state lines, 1,539 miles; of native and foreign state lines, 883 miles; total, 14,383 miles.

Posts and Telegraphs. The postal traffic has doubled in ten years. The number of letters forwarded during the year ending March 31, 1888, was 244,204,771; of newspapers, 21,832,775. The receipts for the year were Rx 1,214,196; expenses, Rx 1,375,215.

The telegraph lines on March 31, 1888, had a total length of 31,894 miles, with 93,517 miles of wire, exclusive of 226 miles of cable. The number of paid dispatches in 1887-'88, was 2,825,691. The receipts were Rx 763,886; expenses, Rx 786,627.

The Drink Traffic.—The Government of India is accused by the natives and their sympathizers with having for fiscal reasons introduced and encouraged the vices, formerly rare, of spirit drinking and opium smoking, which have caused a great deal of misery and degradation throughout India in recent times. The Government itself manufactures liquor in the central distilleries, which are farmed out under a system that encourages the manufacture and sale. Elsewhere the proprietors of stills pay a fixed sum to the Government, and since no effective restrictions are placed on the quantity or quality of the product, they distill poisonous liquor and sell as much as they can. This system was introduced in 1876, when the revenue from drink had been stationary for several years. Within five years the receipts of the Government from this source doubled. An attempt was made to reverse this policy, but, as the revenue straightway fell off by Rx 50,000, the Government gradually returned to the old system, licensing 50 distilleries at a time in spite of the protest of the native population. The revenue from liquor rose from Rx 2,619,000 in 1879 to Rx 4,578,000 in 1888. In Bengal the consumption of strong drink has increased in ten years by 135 per cent., or from 1,600,000 to 3,700,000 gallons. In Bombay between 1882 and 1886 there was an increase of 37½ per cent., or from 2,000,000 to 2,750,000 gallons. A convention of missionaries at Calcutta in December, 1888, proposed to confer the right of local option on the municipalities, feeling confident that the municipalities would refuse to license the sale of liquor. The Hindus and the Mohammedans are alike opposed to the use of alcohol, and the climate and the constitution of the people make indulgence in liquor a fatal habit. The imports of spirits show an increase of 50 per cent. and those of malt liquors one of 60 per cent. in ten years, while all over India there is a steady increase in the manufacture of beer.

Partial Famine.—In Ganjam, a coast district in Madras, to the north of the Godavari river, a failure of crops from drought caused great scarcity of food in 1889. The country, which forms the northern extremity of the presidency, is exceptionally fertile, but is devoid of irrigation tanks and even of wells. Grain rose to famine prices. The Governor, Lord Connamara, who visited the district in May, established relief works and ordered gratuitous aid to be given to women and children. The cholera raged at the same time, causing 1,000 deaths a week. The want of rain was great throughout southern India. In the Orissa and Patna divisions of the presidency of Bombay the failure of the harvest was not so complete as in Ganjam; but there was greater suffering because the authorities were less prompt in providing relief. A magistrate at Alipore punished starving men and women for a breach of the revenue laws in scraping salt from the earth to flavor their meal of water-lily stalks. In Ingul 10 per cent. of the people suffered extreme hunger. In the native states the distress was generally more acute than in British territory. The Rajah of Puspulla, in particular, was censured for his neglect.

The Crawford Case.—Lord Reay, Governor of Bombay, in attempting to extirpate corruption in the civil service, received no support or sympathy from other Indian administrators, whose practice is to hush up scandals and prevent misdeeds of British officials from coming to the knowledge of the public. Arthur Travers Crawford, a Bombay civil servant, was promoted to the high post of commissioner of the central division of the Presidency, with headquarters at Poona. He was in grievously embarrassed circumstances, and in 1873 agreed to pay to his creditors all his large salary in excess of 1,800 rupees a month. His embarrassment continued and he continued to borrow, till in 1884 the Government sanctioned an arrangement by which his pay and allowances were handed over to his creditors, 1,500 rupees being reserved for the monthly expenses of himself and his family in England, and later this was cut down to 650 rupees. Meanwhile he lived extravagantly, paying through his bank as much as 50,000 rupees in a single year. Subordinate officials accused him of extortion, a definite charge of taking bribes was finally brought against him, he attempted to flee in disguise, and was arrested. In October, 1888, a commission, consisting of three civil servants of high official rank, was appointed by the Government of India at the request of the Bombay Government to investigate the case. Mr. Crawford told the commissioners that he had agents engaged in borrowing money for him from natives in different parts of the large and populous district over which he was the chief magistrate, his principal agent being one Hanmantrao Raghavendra. This man testified that Mr. Crawford employed him simply as a general agent to obtain bribes, and that he kept the commissioner in funds and in return dispensed all the patronage and favors and suggested all appointments, promotions, and transfers of Government officials. This statement he supported with a multitude of details. Sirdekar, Dabib, Bapat, and many others, all native subordinate magistrates, or mamlutdars, swore

that they had paid money to Mr. Crawford in order to obtain office or promotion or to retain their posts. This mass of evidence did not deter the commissioners from making a report completely exonerating Mr. Crawford of the charge of corrupt practices. The Governor of Bombay was not satisfied with the decision, and appealed to the Secretary of State, expressing

came so great that the Secretary of State interfered, ordering Lord Reay on April 9 to suspend from the exercise of judicial functions the mamludars who had testified to paying money to Mr. Crawford. A test trial was instituted on the complaint of a private person against one of the incriminated native magistrates, who was accused of having violated a parliamentary act



AN OLD STREET IN BOMBAY.

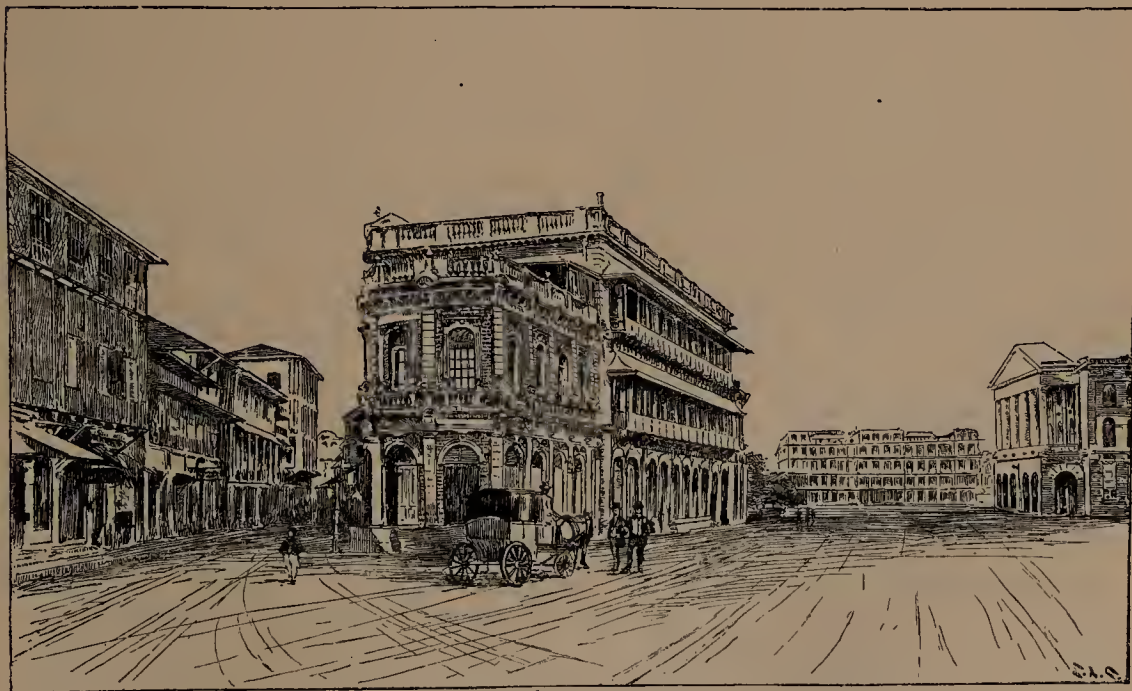
his opinion that the evidence established the charges of bribery beyond all reasonable doubt. Lord Cross declined to review the judgment of the commission, but concurred in Lord Reay's proposal to dismiss Mr. Crawford, holding that the charge of improperly borrowing money was sufficient ground. The commissioners had not been able to reject the evidence that some of the officials had paid bribes to obtain or keep their appointments, but by their finding inculpated only Hanmantrao, who was subsequently tried and found guilty. Lord Reay, in order to get at the bottom of the extortion and corruption, had entered into an engagement with the native magistrates who were coerced into paying illegal gratuities to Mr. Crawford or his agents, whereby they were not to suffer for their evidence before the commission. Jealousy and bad feeling between the European official class and the native community grew out of the Crawford case. The natives and their Radical friends in England alone upheld Lord Reay in the position he had taken; but the Anglo-Indians, while deprecating a thorough investigation of the charges against the great English official and asserting that he had been cleared of all suspicion of criminality, demanded that his victims should be dismissed from office, disgraced, and punished for the crime of bribery. The judges of the High Court of Bombay remonstrated with the Governor for continuing the magistrates in office and received a reprimand from the Governor in Council. The clamor against the course of the Governor be-

of the reign of George III by purchasing judicial offices. The native magistrate who heard the complaint dismissed the case, the High Court reversed the decision, the lower tribunal refused still to entertain the charge, and the appellate court for the second time pronounced the decision erroneous in law, but declined to order the court of first instance to investigate the facts. The home Government again exercised pressure on Lord Reay, who first transferred 33 of the mamludars implicated in the Crawford affair to other districts, and then deprived some of them of the right to perform judicial functions, but retained them as administrative officers. The official Anglo-Indians, who stop at no arrogance or injustice that will serve to crush the spirit and humble the pride of the conquered race, were not content with having thus humbled the reforming Governor and driven the Government partially to violate its pledges. Their press organs held up Mr. Crawford to public sympathy as an officer of distinction and genius who had emerged from the investigation with untarnished honor, but yet, on the flimsy ground of indebtedness, had been discharged with ignominy from a service he had adorned for thirty-four years because he had become unpopular in the native community. His case was contrasted with that of the mamludars, who by their confession were guilty of corrupt practices yet were continued in office and allowed to exercise judicial functions. Lord Reay was finally compelled to depart still further from his

promise. Nine of the mamlutdars were dismissed from the public service on the ground that they had voluntarily paid bribes to escape the consequences of their misdeeds or to obtain unmerited promotion. While making this concession at the demand of the Secretary of State, Lord Reay stipulated that the discharged magistrates should receive pecuniary compensation and that the other inculpated magistrates should be officially exculpated as victims of extortion who under extreme pressure had consented to pay blackmail in order to escape unjust punishments. The Anglo-Indian press demanded that Mr. Crawford should be justified and indemnified by the payment of a retiring pension; but Lord Cross and the Viceroy both intimated that he had received his deserts, and bestowed praise on Lord Reay for his courage and earnestness in endeavoring to put a stop to bribery and corruption. The Governor-General's Council on Oct. 17 adopted a special indemnity bill, securing for the mamlutdars who were continued in their posts exemption from punishment, protection from private prosecution, and immunity from the statutory disability. Those who were removed were compensated by the continued payment of their full salaries.

The Deccan Mining Concession.—W. C. Watson and J. G. Stewart, English financiers, obtained from the Nizam of Hyderabad a concession of mineral rights in the Deccan, which has always been considered the richest part of

pelled by the terms of the contract to invest in surveys and preliminary works. The Nizam recovered his money from the corrupt agent, but had parted with the mining monopoly, and was unable to compel the *concessionnaires* to develop the mines or to bestow the privilege on honest undertakers. Lawyers were able to find no way out of the difficulty, and the Indian Government and a select committee of the House of Commons could only condemn the shrewd trick of Mr. Watson. It was only the prospect of further profits that induced the city speculator and his associates to offer a compromise that would enable the company to carry on operations on a large scale. The value of the Singareni coal field was known from Government surveys, and £60,000 of the original capital had been expended in developing these mines. After two years of working, the mines were producing at the rate of 80,000 tons a year, and the railroads alone offered a ready market for nearly three times that quantity. Through the intermediation of the Government Watson and Stewart agreed to furnish £150,000 more of capital, on which no dividends will be paid till the other shareholders receive 5 per cent. As the coal-mining operations can be so extended with the new capital that the entire £1,150,000 can probably earn 5 per cent. after a few years, the agreement was not of the nature of a restitution. The Singareni coal field, situate at Yellindellapadu, 120 miles east of Secunderabad, is only 8 square miles in extent, yet



THE NEW QUARTER OF BOMBAY.

India from a mineralogical standpoint. The Nizam authorized his political agent in London to invest £120,000 in the enterprises. The *concessionnaires*, having purchased the silence of the Nizam's agent, sold £1,000,000 worth of stock that the company was authorized to issue for more than the par value, and retained the proceeds in excess of £150,000 that they were com-

it is estimated that the coal available will maintain an output of 200,000 tons a year for five centuries. The coal is as good as English coal for railroad use. Another measure, 30 feet thick, has been found in the same neighborhood, and other coal fields are said to exist at Kamman, Sasti, Paoni, and many other places. The company has spent some money in prospecting for

diamonds, and at Purtyall, where indications of a diamantiferous layer have been observed, mining machinery has been erected. Other diamond fields are at Buttempand, Attkoor, Moogaloor, Codovatacullo, and Oostapully; but they are known only through tradition, for the Golconda mines, which were the source of all the great historical diamonds, have not been worked for more than two centuries. The English were entirely willing to reserve to the Nizam in the treaty of 1766 the diamond villages, which are scattered through British territory in the Presidency of Madras, the larger and more promising districts being in the valley of the river Kistna. The gold mines of the Deccan once were also a prolific source of wealth. In the Raichur-Doab, between the Kistna and the Toongabudra rivers, gold-bearing strata extend over a tract of 300 square miles, and 130 square miles of it contain evidence of extensive old workings. Some suppose that the mines were abandoned on account of underground water; others, that the industry was stopped by war. Assays of quartz found beside the ancient shafts are said to give as good indications as the successful mines of Mysore.

Sikkim.—The rout of the Tibetan levies in September, 1888, did not suffice to settle the Sikkim difficulty, but removed it to the field of diplomacy. The Chinese Amban met the Foreign Secretary of the Indian Government at Gnatong, where months were consumed in ineffectual negotiations. Not only did the Lamas persist in their claim to the allegiance of the Rajah, but the Amban, who was expected to induce them to influence them to accede to the British demands, asserted that Sikkim was subject to suzerain rights of the Emperor of China, and that he could agree to no arrangement that did not embrace an annual ceremony of homage to China in recognition of this historical claim. The Indian Government thereupon broke off negotiations in January, 1889, and made a second direct appeal to the Chinese Government at Peking, which sent a European official, Mr. Hart, to investigate and report on the situation. The British were compelled at a heavy pecuniary cost to maintain in Sikkim a force of soldiers that suffered severely from fevers and the inclemency of the climate. The Tibetans alternately stationed troops in fortified positions on their side of the pass and withdrew them. In May an Indian regiment was sent to re-enforce the garrison at Gnatong, and subsequently a battalion of European infantry and a battery of artillery. A treaty made between the Indian Government and Sikkim in 1861 stipulates that the Rajah shall retire to cloisters across the mountains only for short seasons, and that he must receive no foreign military forces. The majority of his subjects on the Indian side of the Himalayas are Lepthas, who have suffered oppression from the Tibetans in times past, and resent the influence of the Tibetan priesthood over the prince, who is himself of Lepthcha extraction. They would welcome annexation to India. The Rajah's advisers all took the side of England. In the summer an encroachment of the Tibetans at another point was checked. A company of Tibetan militia, or of Chinese regulars, erected a custom-house in the Niti valley, near the source of the Ganges,

among the Bhotias, a trading and agricultural tribe of Tibetan origin. A civil official went to the spot and ordered the invaders to retire. They claimed that they were on Tibetan ground, and exhibited their instructions from their superiors. A detachment of Goorkhas was then sent from Almora to drive them away and destroy the post; and on the approach of the Indian soldiers they withdrew without fighting. The Chinese Amban remained in Sikkim through the year. For several months no communications with China took place concerning Sikkim. The Indian Government contemplated reoccupying the Chumbi valley on the farther side of the Jelapla Pass in order to awe the Lamas and to obtain cooler and more healthful quarters for the troops, but concluded not to take the risk. Toward the close of the year the Chinese Government, which, although very friendly, showed no inclination to abandon its pretensions in regard to Sikkim, was informed that the Indian Government would take such steps as it saw fit to protect its interests in Sikkim.

Cashmere.—Since the extension of the Russian boundaries to the northern slope of the Himalayas, Russian officers who have made reconnoissances in the Pamir and adjacent regions have expressed the opinion that a military invasion of India is possible from that direction. Their activity in that quarter, in conjunction with the Tibetan difficulty, has impelled the British to strengthen their position in northern India by virtually annexing the kingdom of Protap Singh, Maharajah of Cashmere. Cashmere was left to itself until Protap Singh ascended the throne, when for the first time a British resident was sent to his court. The Maharajah began his reign by a series of important reforms. Political intrigues and conspirators led to the banishment of Lachmanda, the Prime Minister. Among the papers of the latter were letters that were said to reveal treasonable plots against the British power. The Maharajah was charged with complicity in these practices, and under the pressure of threats and complaints the British resident, Col. Nisbet, extracted from him a letter asking that the government of the kingdom should be committed for five years to a council, which should act with him and under his presidency in carrying out needed reforms. The Government of India treated his offer as an abdication, and replied that his proposal was accepted. He was ordered to transfer at once the direction of government affairs to the resident and to abstain from all exercise of authority, and was informed that an allowance would be made to him that would be sufficient for dignity but not for extravagance. The Maharajah, who is described by Indian officials as a cruel, false tyrant and a drunken debauchee, and by others as an ascetic Brahman and a wise and gentle ruler, wrote a long letter to Lord Lansdowne denying the interpretation put upon his request, and concluding in the following words: "In case liberty is not allowed me by the Supreme Government, and I have to remain in my present most miserable condition, I would most humbly ask your Excellency to summon me before you and shoot me through the heart, and thus at once relieve an unfortunate prince from unbearable misery, contempt, and disgrace forever."

British officials took over the Government in the early summer. Many small Himalayan princes once tributary to Gholab Singh, who were able to defy the power of the deposed Maharajah, have made their submission to the Indian Government since the installation of British administrators in Cashmere. Sir Lepel Griffin has proposed to confiscate the land of the annexed state, which has the most delightful and salubrious climate in India, and colonize it with Englishmen, who shall be held liable to military service. To the west of Cashmere the expedition against the Black Hill tribes in 1888 made the British name dreaded among the mountaineers far and wide. Several English officers have been detailed to act as civil commissaries in that region.

The Administration of Burmah.—The submission of the principal pretender, Labin, enabled the English gradually to transfer the administration in Upper Burmah, from the military to the civil authorities. The army of occupation was replaced by a military police by slow degrees. At the end of 1888 the police force numbered about 17,000 men, consisting in great part of soldiers who had served their terms of enlistment. Three quarters of the police consist of natives in the northwest of India belonging to the inferior castes; one sixth of them are Mohammedans. The native Christian element is for the first time largely represented in a force serving under the Indian Government, nearly half of the officers being Eurasians. An entire battalion is composed of Karens of Burmah, who have long been converted to Christianity, and maintain among themselves 451 Protestant churches, most of which are presided over by ministers of their own race. The police force has a military organization, being divided into 19 battalions, one for each district, standing under the orders of head of the district civil administration. They occupied in the beginning of 1889, with garrisons not stronger than 25 men each, 159 fortified stations, which were supplied with provisions for three months. The military police are armed for the most part with rifles. They were supplemented by 6,127 civil police carrying swords and clubs, distributed among 100 posts. By making whole villages responsible for lesser offenses and imposing fines for disturbances of the public peace and security, the Government compels the villagers to maintain an effective force of patrols and constables without cost to itself. The reports of violent crime in Burmah for the first quarter of 1889 show a falling off, yet the evidences of discontent were still apparent, and the country seemed no nearer a settled condition than it had been two years before. The measures adopted by the Government were in many instances calculated to exasperate, impoverish, and exterminate the people. The house tax of villagers who would not or could not pay was collected from their neighbors. Villages plundered by dakoits were subjected to police fines for not catching the robbers. Villagers who were relatives of persons suspected of dakoity were deported in large numbers to the Kubo valley or the upper Chindwin, there to die of fever or starvation. Young officials without experience and ignorant of the language or charac-

ter of the people were placed as magistrates over whole districts. Officials engaged in the pursuit of suspected robbers usually tried, sentenced, and executed them as soon as caught. Officers of police were often heard to say that it was a mistake to take prisoners. Cases were known of peaceful villages being destroyed and women and children shot down. The outrages, cruelties, and extortions of the police were a common story. When an alleged dakoit appealed against a sentence of imprisonment the officer changed it to a death sentence, and had him hanged at once. A deputy commissioner issued an order that all persons must be compelled to kneel down in the road as a sign of respect when an official passes. The people emigrated in great numbers to Lower Burmah. The most baneful measure adopted by Sir Charles Crosthwaite, the Chief-Commissioner, was that of consolidating villages, that is, of breaking up small villages and forcing the inhabitants to remove into the larger places, in order that they should be more secure from dakoits. As a consequence, they were deprived of the means of livelihood, while the fields that they had cultivated lay waste. They had no choice but to become dakoits. The Government on various pretexts has confiscated some of the most fertile lands in the country. It is intended to settle large colonies of Hindus in the country. Grants of 10,000 acres were offered to planters on the condition that 90 per cent. of the cultivators should be imported from Behar or Nagpore. Various reforms were instituted while Sir Charles Crosthwaite was absent, by his deputy, Mr. Macdonnell. He curtailed the powers of young judicial officers, and ordered the release of about 3,000 prisoners.

The Shan States.—The rebellion of the Shan states began before the British occupation of Burmah, and furnished one of the pretexts for the conquest. The Limbin prince, the nearest male relative of King Thebaw, who was educated under British influences, had been taken to Lower Burmah in 1866, when his father, the recognized heir to the throne, was killed in a rebellion against the king, his nephew. Several years afterward Limbin was recalled, and, with an English officer for his adviser, was made governor of a small district in the Shan country. Here he plotted the overthrow of his cousin, gathering about him an army of the discontented. In consequence of this he was banished to Moulmein, but kept himself in communication with the back country with the help of traders, who passed to and fro, and in 1885 he reappeared among the Shans, whom Thebaw had offended by deposing some of their princes. An army was assembled in the district of the Sawbwa of Kyang-ton, east of the Salwen, and Limbin was invited to lead it against Thebaw. When the British meanwhile occupied Mandalay, and formally annexed the kingdom, Limbin kept the federation together by proclaiming as his object the expulsion of the invaders and the restoration of the native dynasty. Some of the princes at first set up as pretender a remoter relative of the late king; yet before the close of 1886 all the southern Shans were united under the banner of the Limbin prince. The British held 141 posts, with an army of more than 20,000 men, and kept up communications between the

garrisons only by means of flying columns. No civil official dared show himself in his district without a military guard. The chief cause of the constant disturbance of the country by bands of insurgents was seen to be the organized support given to the pretender by the Shans. After secret negotiations with some of the Shan princes, the British sent an expedition against Limbin from Nlaingdet. A military road was built, Fort Stedman was erected half-way to Mone, the center of Limbin's power. After the neighboring princes had been won over, the advance on Mone began in May, 1887. The pretender, deserted by his friends, accepted the conditions that were secretly proposed to him, and gave up the fortress without striking a blow, receiving a large pension and a residence in Calcutta.

The reorganization of the Shan country was proceeded with deliberately on a systematic plan. The princes who were known to be enemies of the British power were deposed, and rival claimants put in their places. The princes as sawbwas under the Government at Mandalay possess a much smaller degree of independence than rajahs of vassal states in India. On Jan. 1, 1889, *sannads*, or letters of recognition, were given to 59 Shan princes, ruling over territory 25,000 square miles in extent. Sentences of death must be reviewed and confirmed by the English resident commissioners. The tribute that the princes are required to pay to the Central Government is really a regular tax based on the Burman *thathameda*, or house tax, and is subject to revision every five years.

The Chin Expedition.—In order to build the projected railroad from Chittagong to Upper Burmah and Yunnan, it was found necessary to conquer the wild Chin and Lushai tribes. While the British were preparing for a military occupation of their country, the Shwaygyobin pretender, who had caused the British much annoyance by raising insurrections on the right bank of the Irrawaddy, where he still had a large following, offered his services as a leader to the Chins, and advanced with a large body of them into the Yaw tract bordering on the settled parts of Burmah. The prince, before the annexation of Upper Burmah, was employed as Government vaccinator in British Burmah, and was not a member of the royal family of Burmah. He was joined by the ex-Sawbwa of Kale. Together they placed themselves at the head of the Tashons, the southernmost tribe of Chins. The British supposed that negotiations of Major Raikes with Sonpek, chief of the Tashons, in 1888 had resulted in a durable agreement, and sent exploring parties to survey a railroad route between Bengal and Mandalay. The tribe resented this intrusion, and in a short time were joined by the Siyins, the Sagylaings, and the Baungshes, and later by the Kanhaws, comprising together the whole of the Chin nation, which, rather than submit to the threatened foreign rule, declared open war against the British authority. The Chins and their neighbors the Lushais inhabit the mountainous region that divides Upper Burmah from the older parts of India. The Chins live on the Burman side and the Lushais on the Indian side of the mountains. Together they number 30,000 fighting men. The

mountain range, which stretches north and south, rises to elevations of over 7,000 feet. The Chins and Lushais, although classed as savages, stand on a higher plane of culture than the Nagas and Singphos or Kachyens living north of them. The Lushais, who are brave, active, and intelligent, have often given the Indian Government trouble by their sudden raids on the villages of Bengal. Their only arms are ancient flintlocks and spears, but they are adepts in jungle fighting and in constructing stockades and entanglements to defend difficult passes. The Chins have made themselves equally offensive since the conquest of Ava, by falling upon Burmese villages as far as the Chindwin river, and carrying off people into slavery. They are closely allied in race to the Lushais and to the Shendus and Kukis. They are described as given to cruel superstitions, making human sacrifices in the belief that they will insure successful harvests.

The British had determined on a simultaneous advance into the mountains from both sides. Before entering upon this difficult campaign, the British sent a demand to the Chins to submit and make reparation by surrendering the Burmese rebels and dakoits who had taken refuge among them. This challenge was answered by bolder acts of defiance. In the Yaw district raiders killed or carried into captivity the inhabitants of several villages. The expeditionary force was not ready to take the field until the depredations had been carried on for many weeks. The Chins attacked a body of Madras infantry between the military posts of Kan and Mozo in the region of the upper Chindwin. The timely arrival of re-enforcements saved the detachment. The troops retired behind the fortifications at Kan, but were compelled to abandon the post and retreat to Gangaw, the capital of the district, which was besieged by a large body of Chins. Re-enforcements arrived at the front in time to save the place from capture. The Chins were joined by great numbers of Burmese villagers, who brought with them the firearms that the English authorities had given them to defend themselves against the forays of the mountaineers.

As soon as the safety of the frontier was insured by the operations in the Yaw district, and the troops had dispersed the hostile bands that were collected in the neighborhood of Gangaw, Gen. Faunee, with 1,000 British regulars and Goorkhas invaded the Chin country from Kamballe. His march was delayed by the detachment of a large part of his force for the relief of the Sepoys and military police who were besieged at Gangaw. The field force advanced into the hills, making a road as it marched, and burning the villages. It was attacked several times, the casualties being 26 killed and 54 wounded. Sayin, one of the capitals of the Tashons, was captured on Feb. 4. The force reconnoitred as far as the summit of the Lethia range, which is 8,200 feet above the sea level. The other chief town of the tribe, Tigyin, was occupied, and in all 15 villages were captured and burned. The village of Tokhlaing, in the heart of the Tashon country, was fortified and made the headquarters of the Chin frontier force under the name of Fort White, a garrison of 300 soldiers being left there when the expedition returned. The Tashons

expressed a willingness to make a truce, provided they were not required to surrender the Burmese refugees, yet when the English commander agreed to their terms they declined to sign an agreement. The Kanhaws surrendered some of the captives that they had taken. The Siyins and Sagylaings gave no token of submission. The expedition into the Lushai country from Chittagong was not sent, as had been planned, and the joint operations from both sides of the mountains were postponed till the next winter, unless in the mean time the powerful Tashon tribe should succumb to the menace of the fort in its midst and to the inconveniences of a blockade or be induced by other means to agree to an acceptable peace. The Chins harassed the garrison at Fort White, which suffered much from sickness. They prevented effectually all attempts to make roads. Major Raikes entered into negotiations with the Tashons, who were deprived of food by the blockade. They expressed a willingness to submit, and delivered up a part of the captives that they had taken, but their sincerity was doubted, since they would come to no definite terms. In the autumn preparations were made on a large scale for the joint expedition.

The Karennee Expedition.—Eastern Karennee, on the border of Siam, contains the most valuable of the teak forests. Its ruler, Sawlapaw, refused to have anything to do with the English, and there was much doubt whether his territory belonged to Burmah or to Siam. When the Superintendent of the Shan states, Mr. Hildebrand, made a tour along the border, Sawlapaw declined to hold an interview with him. One district was occupied and placed under a Shan sawbwa, who claimed to be the prince of the state, but as soon as the force was withdrawn Sawlapaw recaptured it and expelled the Burmese officials. The British again took possession, and again the Karens invaded and devastated the district, and would not retire until a strong body of troops was sent to re-enforce the garrison at the capital of the little state. A message was then sent to Sawlapaw, requiring him to come to Fort Stedman and pay an indemnity, surrender five hundred guns, and pay an annual tribute. The Karen chief said that he would treat for peace if the superintendent would meet him at the border. The English authorities agreed to that condition and extended the period of grace. Sawlapaw used the period of respite to prepare for hostilities. In January, 1889, two columns of troops entered Karennee, one from the north and the other from the south. The northern column, under Brig.-Gen. Collett, encountered much resistance. In one engagement two hundred Karens were killed. After that there was no further struggle, and the invading force marched into the deserted capital Sawlon. Sawlapaw having disappeared, the British commander was at a loss what to do. Just as the troops were about to march away, the nephew and heir of the ruler, Sawlawi, came in, and as a last resort, he was appointed Sawbwa of Eastern Karennee, on his agreeing to pay the indemnity and tribute. A large body of Siamese troops appeared on the frontier to observe the English operations. The two commanders met, the Siamese general said he would

aid in the capture of Sawlapaw, and that that part of the country belonged to Siam. After the withdrawal of the troops Sawlapaw emerged from his hiding-place, and resumed the direction of affairs, although Sawlawi continued to act nominally as Sawbwa and paid a part of the indemnity. The chief of the Red Karens had always been a mild and popular ruler, yet he visited relentless justice on those of his subjects who had been won over by the English, dooming to death nearly one hundred men of high position. Ney Elias was appointed to act on a joint commission with a Siamese official to delimitate the Siamese and Burmese territories. The Siamese in the summer took possession of all Sawlapaw's territory east of the Salween, whence for years the best teak timber has been drawn, and confiscated a large quantity of timber that was already felled. As the Indian Government refused to send the English commissioners to the Siamese capital to discuss the basis of the delimitation and the King of Siam would not permit his commissioners to go to Rangoon, they endeavored to settle all arrangements on the field of their operations.

Operations against Kachyens.—The Government sent a military expedition in 1887 to explore the region of the Nantelung mountain, near the sources of Chindwin river, where are found the principal mines of jade and amber. A strong garrison of Goorkhas was stationed at Mogaung, the chief town of the district, which is a busy place of trade. The jade duty was farmed out in June, 1888, to a Chinaman for 50,000 rupees per annum. On the western side of the mountain there are beds of this mineral forty yards deep and fifty in length. Amber is found in inexhaustible quantities, and is a profitable article of trade, being specially prized for necklaces by Mongols and Tibetans. Rubber is another product of the region, and the authorities were impressed with the importance of pacifying a district likely to contribute considerably to the revenue. Success seemed to have crowned their efforts when the Lepei and Ithi Kachyens attacked a force that was sent to take possession of the jade mines, and afterward made an attack on Mogaung, where Lieut. O'Donnell and the Goorkha police gallantly repelled a large force. Four separate expeditions were sanctioned and organized against the different branches of the Kachyen tribe. A demand was made on their chiefs for the surrender of the leaders in the attacks on the British, Po Saw and Nga Ti. As no compliance was shown with the ultimatum, the troops marched against the Kachyens. The one against the Lepei clan was the most successful. The other forces encountered considerable resistance, but succeeded in burning the principal villages of the offending tribes. There were 22 engagements, in which the entire loss on the British side was 39 killed and wounded. The number of villages destroyed was 46. The operations were delayed by an outbreak of small-pox among the soldiers. The troops burned all the grain and provisions in the country through which they marched.

Minor Operations.—The northern part of the country bordering on Bhamo and the Ruby mines district has been in a perturbed state from the beginning of the British occupation. There

the conquerers have many enemies, one of the bitterest of them being Kan Hlaing, whom they refused to recognize as Sawbwa of Momeik. Acting in conjunction with another chief called Saw Yan Naing, he gave so much trouble that troops were sent into the Ruby mines district and to Momeik in the early part of 1889. The two leaders had collected a formidable hostile force. The punitive expedition succeeded in driving Saw Yan Naing from his principal stockade. Considerable disturbance was caused, especially in the neighborhood of Bhamo, by the pretensions of the Sawyannine prince, whose partisans collected on the borders of the Thei-ennee, Momeik, Tougbaing, and Mainglon states in the northern Shan country. The pretender led a formidable band recruited from Chinese brigands and deserters from the Chinese army. At Siu, in the neighborhood of Bhamo, Superintendent Segrave and the military police under his command were attacked in a stockade and forced to retreat. A mixed English and Sepoy force were sent out from Bhamo, and the rebels were shelled in their stockade at Maulin, which was carried with the loss of twenty-one officers and men. After another spirited engagement at Mankin the band was broken up. Large re-enforcements were sent to Bhamo. In March, Gen. Sir George White was succeeded in the chief command of the troops in Upper Burmah by Maj.-Gen. Gordon. Mansee was captured and burned by dakoits while a considerable body of military police that were stationed in the stockade close by remained inactive. In April, Brig.-Gen. Wolesey, commanding at Mandalay, determined to punish the Pou Kan Kackyens, who were accused of sheltering and aiding the dakoits in the Bhamo district. A column of five hundred and fifty British and native infantry concentrated at Mansee, and advanced into the Kachyen country, destroying every habitation and burning vast quantities of grain. After the work of devastation was concluded the submission of the headmen was accepted. In March and April there was severe fighting in the Ruby mines district. The Tarpeng trade route between Bhamo and Yunnan was blockaded by Kachyens who were hostile to the Chinese as well as to the English.

Insurgent bands continued to spring up in all parts of Burmah throughout the year 1889, as in years past, and it was deemed necessary to patrol the country with movable columns of mounted infantry, although they could accomplish little. The operation of the Mandalay railroad, which has cost £4,000,000, was partially stopped, owing to the disturbed state of the country. Myothit, in the Toungdwingyee district, a large village near the old frontier, was attacked and captured, burned, and plundered by dakoits on April 11, the police garrison offering no resistance. A few days later Thabeitkain, a considerable town on the Irrawaddy north of Mandalay, was sacked, while the police in the neighboring stockade looked on. Encounters between the flying columns and the dakoits in Toungdwingyee division took place in the summer. A force of cavalry and police were beaten by a rebel band near Wetchyo. On June 1 Assistant-Commissioner Dyson was killed in a fight at Magwe, and the force of police in the

district, already 1,000 strong, was largely re-enforced. Near the same place a company of police commanded by an English officer was defeated a few days afterward, and the band was then pursued and severely punished by Maj. Graves. The disturbance in this region, which amounted almost to a general uprising, was caused by the consolidation of villages. A large number of villages, the inhabitants of which for generations had been devoted to raising the silk worm and manufacturing silk, were forcibly broken up. The people of the district migrated to Lower Burmah in great numbers. European soldiers replaced the Indian police in the Magwe district, who were found to be worthless. On June 5, Ottama, formerly a lieutenant of Boshway, was defeated in Minbu. He was pursued by the police for months afterward, until he became a fugitive with no followers left.

The Wuntho Sawbwa, a chieftain holding a large territory on the west of the Irrawaddy, has caused the Government much perplexity. Like the prince of the Red Karens, he has refused from the beginning to pay tribute or homage or to have any intercourse with the English or to allow the forest commissioners to enter his territory. In 1889 dakoits made his country the base of their operation, where they were safe from pursuit, just as they often have before. The Mandalay authorities sent a warning to the Sawbwa, but still they would not venture an attempt to bring him into subjection for fear that they could not cope with his formidable power, leagued with that of the Chins behind him, the Kachyens and northern Shans, and the whole population of Upper Burmah ready to rise in rebellion. Many of the insurgent bands, particularly those in the neighborhood of Mandalay, unfurled the banner of the Mingoos prince, who was the most legitimate of the pretenders still available and almost the last of the Alompra princes left alive. He was the son of Mindoon Min, King of Burmah, who died in 1879. He rebelled against his father, fled to Lower Burmah, plotted there against the English, and then took refuge with the French, who have since given him a pension and kept him interned at Pondicherry or Chandernagore. In October, 1889, he escaped from Pondicherry and attempted to reach the Shan states through French Cochin-China, but was arrested and detained by the authorities at Saigon. The dakoits form a systematically organized secret society permeating the whole Burmese community, which has for its object the expulsion of the conquerors. Distant bands are in constant communication with each other. In documents that have been found in their camps the British are designated as rebels, robbers, and dakoits. Civilians as well as fighting men are received into the brotherhood, which is bound by oaths. The qualifications are Burmese nationality, Buddhist faith, and adherence to the priesthood, the religion, and the nation. The leaders receive regular military commissions and titles of different grades, and the officers show due subordination to their superiors. The English have found in captured papers the names of many persons of various stations who are acting as spies for the dakoits, but as nearly the whole nation is open to the same suspicion nothing is done to them by way of punishment.

INDIANA, a Western State, admitted to the Union in 1816; area, 36,350 square miles; population, according to the last decennial census (1880), 1,978,301; capital, Indianapolis.

Government.—The following were the State officers during the year: Governor, Alvin P. Hovey, Republican; Lieutenant-Governor, Ira J. Chase; Secretary of State, Charles F. Griffin; Auditor, Bruce Carr; Treasurer, Julius A. Lerueke; Attorney-General, Louis T. Michener; Superintendent of Public Instruction, Harvey M. La Follette; Judges of the Supreme Court, S. D. Coffey, John G. Berkshire, Walter Olds, Byron K. Elliott, Joseph A. S. Mitchell.

Finances.—The State debt on Oct. 31, 1889, aggregated \$8,540,615.12, of which sum \$8,056,615.12 is classed as the foreign and \$484,000 as the domestic debt. The yearly interest on the foreign debt, payable in New York, is \$249,625; and that on the domestic, payable to Purdue and Indiana Universities, is \$24,200. The debt, during the last year, has been increased for the purpose of paying interest on the public debt, \$370,000, and for meeting specific appropriations of the Legislature, \$1,400,000, the total increase being \$1,770,000. For several years the tax-rate of 12 cents for general purposes has failed to produce a revenue sufficient to meet current State expenses, and the deficiency has been made good by issuing bonds and adding to the permanent debt. The General Assembly this year refused to increase the rate, but practiced no economy in making appropriations; so that, on the present State valuation of \$821,512,984, the revenue for the next two years will, as before, be inadequate. The total appropriations made by the General Assembly, this year, for objects outside of the current needs of the government, amounted to \$1,231,916.97. The following statement shows the condition of the State treasury:

Balance in treasury Nov. 1, 1888.....	\$327,726 16
Receipts from all sources	9,442,638 35
Total	\$9,770,364 51
Disbursements for all purposes.....	8,796,255 16
Balance in treasury Oct. 31, 1889	974,109 35

The balance in the general fund on Nov. 1, 1888, was \$96,134.67; the receipts from all sources amounted to \$3,485,907.63, and the disbursements to \$2,770,307.74, leaving a balance on Oct. 31, 1889, of \$811,734.56. The receipts of this fund include the following items: From State tax, \$1,965,299.56; from sale of State bonds, \$1,770,000; from insurance fees and tax, \$89,553.27; from earnings of penal institutions, \$165,915.18; from advance payments by counties, \$214,833.13; from counties for one half maintenance of reformatory institutions, \$41,107.38. Payments were made from the fund, for executive officials, \$99,028.53; for State judiciary, prosecuting attorneys, etc., \$192,544.83; for Supreme Court salaries and expenses, \$38,300.06; for interest on State debt, \$269,934.09; for State educational institutions, annual and special appropriations, \$296,197.00; for benevolent institutions, maintenance and new buildings, \$822,874.44; for penal institutions, maintenance and new buildings, \$179,082.49; for reformatory institutions, maintenance and new buildings, \$125,525.29; for legislative expenses, \$124,806.17; public printing, \$30,000; advanced payments returned to counties, \$296,053.79; Soldiers'

and Sailors' Monument, \$51,046.21; militia, \$33,922.06; for miscellaneous purposes, \$186,007.94. The total tax rate is 28 cents of each \$100, of which 16 cents is for schools.

Legislative Session.—The fifty-sixth session of the Legislature began on Jan. 10, and closed on March 9. Both houses were controlled by the Democrats, while the Governor and the principal executive officers were Republicans. The dispute of two years ago was revived, when the Senate refused to admit Lieut.-Gov. Robertson to preside over its opening proceedings. An organization was effected without him, and Alonzo G. Smith, the leader in the former dispute, was chosen Secretary of the Senate. A few days later the new Lieutenant-Governor was inaugurated, and, though no objection could be made to his right to preside, the Senate accepted him with ill grace. A series of rules was adopted, denying him the right to preside over joint sessions of the houses, and providing that on the request of two members, whenever the Lieutenant-Governor refused to put a question or to recognize a member, the Secretary should become presiding officer for the time being. A rule providing that, after the previous question has been moved, no member shall have the right to explain his vote, effectually silenced the voice of the minority. The Democratic legislators then proceeded to introduce and to pass, in each case over the Governor's veto, a series of measures designed to deprive him of his appointing power and to vest it in the General Assembly. The officers of State Geologist, Mine Inspector, and State Inspector of Oils, heretofore filled by executive appointment, were abolished, and the Department of Geology and Natural Resources was created, over which a director, elected by the General Assembly every four years, should preside, who should appoint the chiefs of the four divisions—geology and natural science, mines and mining, mineral oils, and natural gas. The three directors of the Northern State Prison and the trustees of the Indiana Hospital for the Insane, of the Institution for the Education of the Blind and of the Institution for the Deaf and Dumb were all removed from the control of the Governor, and made subject to election by the General Assembly. The government of the three new Hospitals for the Insane—at Logansport, Richmond, and Evansville—was intrusted to three boards of trustees of three members each, to be chosen by the General Assembly. A State custodian of public buildings and a State-House engineer are to be elected by the same body. Finally, provision was made for the establishment of a Supreme Court Commission of five members, to relieve the court of a part of its duties, the members of such commission being elected by the General Assembly. The term of the above-mentioned officers was fixed at two or four years. In case a vacancy occurs when the General Assembly is not in session, the Governor is permitted to appoint a successor to serve till the next meeting of the Assembly. The Governor and the Republican legislators strenuously opposed this legislation.

Provision was made for paying the accruing school fund bonds numbered one to five, inclusive, by authorizing the issue and sale of new bonds to the amount of not over \$3,905,000, bearing not over 3½ per cent. interest. This debt is

due by the State to the school fund, and it is provided that the money accruing to this fund from the sale of the bonds shall be distributed to the several counties, to be invested by them, for the principal and interest of which they are held responsible. Another act requires all school funds held by the counties to be loaned out by them at 6 per cent. interest payable annually in advance. For the immediate needs of the State government, a temporary loan of \$700,000—and if necessary, of \$700,000 additional—is authorized, for which 3-per-cent. bonds running from five to ten years may be issued. The Governor, Auditor, and Treasurer are also directed to fund any temporary loans now outstanding, whenever they can do so at a lower rate.

With reference to education, the Assembly designated the State Board of Education as a board of commissioners which should select or procure the compilation of text-books on certain elementary topics, to be used in the common schools of the State, the board having power to purchase manuscripts and to cause them to be published and used in the schools or to make contracts for the supply of text-books already published. In all cities of 3,000 or more inhabitants, evening schools are required to be opened.

Eight hours are made a day's work for all but agricultural and domestic laborers. The execution of criminals is required to be private and to take place before sunrise. In cities of over 29,000 inhabitants, boards of metropolitan police and fire department are established, and in cities of 50,000 inhabitants or over boards of public works are created. The first incumbents are to be elected by the General Assembly and their successors appointed by the mayor for a term of four years. Liquor licenses were increased to \$300 and \$350 per annum in cities, and \$200 and \$250 in towns. The following enactment is designed to suppress the lawlessness of the so-called White-Cap organization:

If three or more persons shall unite or combine together for the purpose of doing any unlawful act in the night-time, or for the purpose of doing any unlawful act while wearing white caps, masks, or being otherwise disguised, such persons shall be deemed guilty of riotous conspiracy, and upon conviction thereof shall be imprisoned in the State prison not more than ten years nor less than two years, and fined in any sum not exceeding \$2,000.

The legislation of the session designed to secure the purity of elections was one of its most important features. An act that contains the essentials of the Australian ballot system was adopted. It provides that voting precincts containing not over 200 voters shall be established; that the Governor and two persons selected by him, one each from the two leading parties, shall constitute a State board of election commissioners, which shall prepare and distribute all ballots for State officers; that the clerk of the county court and one person from each of the two leading parties selected by him shall constitute a county board of election commissioners, which shall prepare and distribute all ballots for other than State officers; that all ballots shall be printed and distributed at the public expense; that there shall be a State ballot and a county ballot differing in color from each other; that

the names of all the candidates for each office shall be printed thereon, the names of independent candidates being added to those of the regular party candidates on petition of a certain number of voters; that the voting shall be secret, three booths or stalls at each polling-place being required, into which the voter shall go to prepare his ballot, and that each voter shall indicate his choice by stamping the ballot with a stamp furnished him by the poll clerks. The poll clerks shall write their initials on the back of every ballot given out by them; the voter shall, after preparing his ballot, fold it so as to show these initials and to conceal his choice, and a penalty is fixed for showing to any one his choice before depositing the ballot. Employers are required to allow workmen four hours on election day for voting.

Another act concerning bribery provides that every candidate, either for nomination by a political convention or for election, who shall bribe or attempt to bribe any person to vote for him or to remain away from the polls, or shall hire another to work for him or to refrain from working for another, shall be fined and imprisoned, disfranchised, and rendered incapable of holding office. Another law provides that—

Whoever hires or buys, directly or indirectly, or handles any money or other means knowing the same to be used to induce, hire, or buy any person to vote or refrain from voting any ticket or for any candidate for office at any election held pursuant to law, or at any primary election or convention of any political party, the person so offending and all others aiding, abetting, counseling, encouraging, or advising such acts, shall thereby become liable jointly and severally to the person hired, bought, or induced to vote or refrain from voting, in the sum of \$300 and reasonable attorney's fees for prosecuting the case.

The following appropriations for public institutions were made: \$165,000 for completing and furnishing the three new insane hospitals; \$100,000 for rebuilding the State Normal School, at Terre Haute, destroyed by fire; \$187,300 for completing the main building, adding two wings to and furnishing the School for the Feeble-Minded; \$50,000 for a school building at the Institution for the Education of the Deaf and Dumb; \$60,000 for a library building at the State University; \$96,000 for buildings at Purdue University; and \$45,000 for additions to the Institution for the Blind. The Indiana militia received \$37,000, and \$10,000 was appropriated to improve the Capitol grounds. Other acts of the session were as follow:

To prohibit any person, firm, corporation, or company from piping or otherwise conveying out of the State natural gas or petroleum, and requiring gas or petroleum wells not in use to be stopped so as to prevent waste.

Permitting petroleum and gas companies to appropriate and condemn real estate for laying pipes from their wells to a market. Also extending to such companies the operation of the mining corporation law.

Accepting, for the benefit of Purdue University, the provisions of a recent act of Congress establishing agricultural experiment stations in the several States.

Repealing the act of 1885 regulating the rental for use of telephones.

Prohibiting the obstruction of ditches or drains; requiring the county surveyor to allot to each owner

of land benefited by any ditch or drain the portion thereof he shall annually clean and keep in repair, and giving to each township trustee the duty of seeing that each owner performs his allotted work, or such trustee may employ some one to do the work, and the expense shall be a lien on the property benefited.

Providing for the regulation and support of the State Library, and appropriating \$5,000 for 1889 and \$2,000 annually thereafter for purchase of books and for a catalogue.

Providing for the incorporation of associations for the construction of levees and dikes, and for the reclamation of wet and overflowed lands.

To prevent the adulteration of vinegar.

Re-enacting and amending the law relative to the powers, duties, and compensation of the Attorney-General.

Providing for the appointment, in all cities having a population of 29,000 or more, of a Humane Inspector, who shall attend exclusively to the detection and arrest of persons violating the humane statutes of the State.

Providing for the incorporation of presbyteries, synods, conferences, associations, conventions, camp-meetings, and assemblies of the chief judicatory of any religious denomination.

Making it unlawful to sell or expose for sale beef, mutton, veal, lamb, or pork, for human food, which has not been inspected alive within the county by an inspector, or his deputy and been found pure, healthy, and merchantable.

Regulating the manufacture, sale, and use of dynamite.

Restricting the rate of taxation in counties of over 25,000 voters to thirty-three cents on each hundred dollars.

Providing for the organization of associations in the State for the purpose of holding interstate fairs.

Prohibiting the black-listing of discharged employes, and any attempt by an employer to prevent any person who has left the service of such employer from obtaining employment elsewhere.

Revising the militia law.

Providing for the establishment of branch highways.

Providing for the release of liens retained by the grantor in conveyances of real estate.

Providing for the establishment of Kindergartens for children between four and six years of age in incorporated towns and cities.

Regulating the care, custody, and binding out of children, and providing punishment for those who cruelly treat or neglect them.

Establishing in every township of more than 75,000 persons a board of children's guardians, which shall have the care and supervision of neglected and dependent children under fifteen years of age, and shall have power to take under their control any children

abandoned, neglected, or cruelly treated by their parents, children begging on the streets, children of habitually drunken or vicious and unfit parents, children kept in vicious and immoral association, children known to be vicious and incorrigible, and juvenile delinquents and truants.

Making it unlawful to give, barter, or sell, either directly or indirectly, to any child under sixteen years any tobacco, cigars, or cigarettes to be used by such child.

Providing that county institutes shall be held in the several counties each year for the purpose of instructing farmers and others interested in agriculture, horticulture, agricultural chemistry, and economic entomology.

Providing a punishment for neglecting or cruelly treating animals, for keeping them for the purpose of fighting or baiting, or as a target, or for cruelty in transportation of the same.

To establish a live-stock sanitary commission and a State veterinarian.

Forbidding the running of any traction or road engine on a public highway or alley in any incorporated town or city without giving warning thereof by some person preceding such engine fifty yards or more.

Making it unlawful to withhold, mutilate, or destroy the discharge-papers of soldiers, sailors, or marines of the United States.

Requiring at coal mines proper and exact scales for weighing coal, regulating the weighing of the same at the mines, prescribing the kind of screens to be used, the signals to be used at coal shafts, the number of lamps in mines, and the manner and amount of ventilation; requiring sufficient props, caps, and timber to support the sides of the mine to be furnished, prescribing what shall be done to discover fire-damp, and regulating the duties of a mine boss.

Making it unlawful for any manufacturing or mining corporation, firm, association, or person to procure from any employe a waiver of his legal right to obtain fortnightly payments of wages, or to procure an agreement from or to coerce or attempt to coerce any employe to purchase supplies for himself and family of any particular firm, corporation, or person, or at any particular store.

Providing for the incorporation of orphans' homes.

Amending the mechanics' lien law so that contractors and sub-contractors may have a lien thereunder, and so that the mechanics' lien shall extend to the interest of the owner in the lot on which the building, for which labor and materials were furnished, is placed, and providing that such lien shall not be impaired by the foreclosure of a prior mortgage; also extending the lien of railroad contractors to claims for fencing and repair of railroads.

Education.—The following figures concerning public schools cover the school years ending August 31 in 1887, 1888, and 1889:

SUBJECT.	1886-'87.	1887-'88.	1888-'89.
Children of school age:			
White males	381,629	379,759	386,822
White females	361,237	359,480	364,527
Colored males	8,891	8,937	9,598
Colored females	8,772	8,813	9,638
Total number	760,529	756,989	770,375
Children enrolled in public schools.....	509,875	514,468	523,147
Average daily attendance	387,194	408,775	350,752
Male teachers	7,114	7,108	6,776
Female teachers	6,892	7,099	6,477
Number of school-houses	9,847	9,882	9,928
Value of school property	\$14,518,905 36	\$14,751,814 81	
Total school funds, viz.:			
Common-school fund, non-negotiable bonds, and congressional town-ship fund	\$9,617,250 49	\$9,654,552 05	\$9,765,598 24
Tuition revenue distributed	\$3,460,612 21	\$3,046,122 09	\$3,563,800 80
Special school revenue distributed	\$1,589,305 94	\$1,588,909 89	\$1,718,039 86
Total revenue distributed	\$5,049,918 15	\$5,235,081 98	\$5,281,889 66

The last item shows the total annual expenditures in the State for school purposes.

The school fund of 1889 was composed of the common-school fund held by the counties, valued at \$3,303,148.49; the congressional township fund, valued at \$2,557,666.54; and non-negotiable bonds held by the State to the value of \$3,904,783.21. Of the 9,928 school-houses in the State, 85 are stone, 3,691 brick, 6,137 frame, and 15 log.

In compliance with the new school-book law, the State Board of Education, sitting as a board of text-book commissioners, early in July decided that, as they had no funds to advertise for bids for the publication of manuscript text-books submitted to them, they would take no action upon such, but they accepted the following printed text-books: a series of readers, an elementary and a complete geography, and an elementary and a complete arithmetic, all published by the Indiana School-Book Company, and a writing-book offered by the Bowen-Merrill Company. These books are to be supplied to all the school-children in the State at a fixed contract price, and are to be used in all public schools. Later in the year much dissatisfaction was expressed with the character of the books, both as to contents and binding.

At the State Normal School at Terre Haute, the new building, replacing that destroyed by fire, has been occupied. The contracts for the new structure amounted to \$124,955.70. Since the organization of the school in 1870, students have registered from the various counties in the State to the number of 5,762. During 1887-'88 there were 789 pupils enrolled, and for 1888-'89 the total is nearly the same. The report of the secretary of the board of trustees shows the receipts during 1888-'89 to have been \$31,634.82, and the expenditures \$23,272.25, leaving a balance of \$8,362.57.

The State University at Bloomington is a flourishing institution. The catalogue of 1887-'88 shows 275 students in the collegiate and 125 in the preparatory department. The annual appropriation of the State is \$23,000.

Charities.—The daily average number of patients at the Central Insane Hospital during the year was 1,527, and the per capita expenses were \$156.22, against \$170 in 1888. The real estate connected with this institution is valued at \$1,450,000, and personal property at \$178,147.35. A legislative investigating committee appointed this year found that Treasurer and Trustee P. M. Gapen, of this institution, was a defaulter to the amount of \$3,000; that favoritism existed in awarding contracts; that there were waste and extravagance in distributing supplies; and that the whole management was lax and incompetent. The Northern Hospital contained 370 inmates in August. Owing to defective legislation, the appropriations for this institution for the current fiscal year were insufficient for its support, and it was maintained during the last four months only upon the assurance that the next Legislature would make the necessary appropriation. This hospital was first opened in 1888; the other two new hospitals were not finished and equipped until this year.

At the School for Feeble-Minded Youth, at Fort Wayne, the number of children on the rolls Nov. 1, 1888, was 239; number admitted during

the year, 58; readmitted, 1; discharged, 22; died, 6; absent temporarily, 8. Number present Oct. 31, 1889, 262; number on the roll, 269. The total receipts for the year were \$46,120.55, which, by economical handling, was made to cover the expenses. The Legislature of this year appropriated \$187,300 to complete the construction of a new home, making the total appropriation for the purpose \$237,300. With this sum 45 acres have been purchased, and buildings are being erected capable of accommodating 500 children. There are over 100 applicants on the rolls, who can not be admitted until the new buildings are ready.

The Soldiers' and Sailors' Orphans' Home, at Knightstown, contained 254 boys and 194 girls on Oct. 31, of whom 73 boys and 47 girls are being taught trades. The farm attached to the home is thoroughly cultivated, and the sale of its products during the past year realized \$4,870.62.

Prisons.—The report of the State Prison North, for the year ending Oct. 31, shows that the receipts for the year, including a balance of \$9,042.64 at the beginning, amounted to \$122,644.49. The expenditures for all purposes were \$99,976.97, leaving a balance of \$22,667.52 on Oct. 31. The number of convicts received exceeded by 46 those of 1888. There were 748 remaining in the prison on Oct. 31. In the Southern Prison, at Jeffersonville, there were about 670 convicts at the same date.

The State Reform School for Boys, at Plainfield, cared for 564 boys during the six months ending Oct. 31.

Natural Gas.—Since the discovery, two years ago, of extensive natural gas deposits in the coal fields of the State, the sinking of wells and utilization of the product have proceeded rapidly. The field already developed embraces the greater part of 21 counties, containing more than 6,000 square miles. This is many times larger than either the Pennsylvania or the Ohio field. The present population of the counties in which natural gas is found is about 750,000. About 50 cities and towns within the gas field are supplied with the gas, and it is piped to about 20 lying outside of the field. The total number of cities and towns using the fuel is 71, and their aggregate population about 411,000.

Decisions.—A large number of the acts passed by the Legislature this year were reviewed by the State courts and found to be unconstitutional. On April 20 the Supreme Court decided that the act creating the Supreme Court Commission was void, on the ground that it assumed to create a judicial tribunal for which no provision had been made by the Constitution, and that, as the judicial department is co-ordinate with the legislative, the latter can not be supposed to have authority to change or to legislate concerning the former in the absence of express authority in the Constitution. On the same date, in the case of *Hovey vs. the State ex rel. Carson*, the court decided in favor of the right of the Legislature to appoint the trustees of the Insane Hospital. This was one of a series of cases brought to test the validity of the acts that deprived the Governor of the right to name the trustees and directors of many of the State institutions. In this case, and in that of *Hovey vs.*

State *ex rel.* Riley, which concerned the trustees of the Institution for the Education of the Blind, the court laid down the rule that it was within the power of the Legislature to name the trustees of all benevolent and penal State institutions. In the former case Judge Mitchell held that this power was implied in the provision of the Constitution requiring the Legislature to provide for the maintenance of these institutions, while Judges Coffey and Berkshire, denying this, held that the right accrued under section 1, Article XV, of the Constitution, which provides that "all officers whose appointment are not otherwise provided for in this Constitution shall be chosen in such manner as now in or may hereafter be prescribed by law"—the phrase "all officers" meaning all those existing at the adoption of the Constitution. These decisions were considered to settle the constitutionality of the acts relating to the directors of the Northern State Prison, the trustees of the Hospital for the Insane, of the three new hospitals for the insane, of the Institution for the Education of the Blind, and of the Institution for the Deaf and Dumb. The acts providing that the State Statistician and the State Geologist shall be chosen by the Legislature did not come under the scope of this decision, but were passed upon early in November in the cases of *Worrell vs. Peele* and *Jancey vs. Hyde*. The court decided that both of these acts were void, as these offices were not in existence at the adoption of the Constitution, and therefore were not included in the offices mentioned in section 1, Article XV, above cited. The court further say that the appointment of such officers is an executive and not a legislative function, and that the Legislature can not be considered to have such power of appointment unless, as in the case of public institutions, it is expressly given by the Constitution. It was also decided by the court that the people have the right to elect all such State officers created by the Legislature, whether the act creating them so provides or not, and that the Governor can only fill vacancies. Under this decision, the original acts creating these two offices were restored, and the Governor's appointees became the legal incumbents until the next general election by the people. The act regulating the duties and compensation of the Supreme Court Reporter was declared void by the same court, in the case of *Griffin vs. the State, ex rel. Griffiths*. It was contemplated by this act that the judges should prepare the syllabi of cases for the reports, in addition to the decisions—a provision which the court regarded to be unconstitutional, and which vitiated the whole act. The law prohibiting the piping of natural gas out of the State was decided to be an unconstitutional regulation of inter-State commerce; and for the same reason the act prohibiting the sale of meat of animals slaughtered and inspected in another State was declared void. The act requiring railroads to maintain blackboards at their stations, and place thereon reports showing whether trains are on time, was decided to be unconstitutional by several of the lower courts, on the ground that it was not a regulation within the police power, and that it gave the prosecuting attorney half of the fine of \$25 imposed for each offense, which should legally go to the school fund.

Two other acts, creating a Board of Public Works in cities of 50,000 inhabitants or over, a new police board in cities of 29,000 inhabitants or over, and providing that the Legislature shall appoint the first members thereof, were also adjudged unconstitutional. Another important act passed upon by the Supreme Court was that authorizing two loans of \$700,000 each, for the temporary needs of the treasury. It was declared to be valid under the "casual deficit" clause of the Constitution. In the case of the State *vs. Bonnell*, the right of the Legislature to change at any time any license-fee was affirmed, and the legality of the license act of this year established. A license was declared not to be a contract, but an exercise of the police power.

The act concerning the use of money at elections was construed to mean that while candidates, or other persons for them, may contribute money to pay for printing tickets and polling-precincts, it is not lawful to hire wagons and drivers to bring voters to the polls, nor to hire and pay persons to act as challengers, ticket-peddlers, holders of poll-books, or managers of wagons at the polls. All these services may be performed by a candidate himself, or by any person as an act of friendship or party service, gratuitously, but not for pay. Under the new law, wagons and teams may be hired, but not drivers and managers.

INFLUENZA, EPIDEMICS OF. Short's "History of the Air" (London, 1749) is a chronological survey of the remarkable effects produced in sundry places, and at different times, upon animal bodies, by the air and the weather, by seasons and by meteors, etc. It is therein declared that, in A. D. 1510, there appeared a disease called *Coccoluche*, or *Coccolucio* (because the sick wore a cap or covering over their heads). This disease was said to have come from the "Island of Melite in Africa, into Sicily; so into Spain, and Italy, from that over the Alps into Portugal, Hungary, and a great part of Germany, even to the Baltic Sea; every month shifting its situation with the wind, from east to west. So into France, Britain, etc. It attacked at once, and raged all over Europe, not missing a family, and scarcely a person. A grievous pain of the head, heaviness, difficulty of breathing, hoarseness, loss of strength and appetite, restlessness, watchings, from a terrible taring cough. Presently succeeded a chillness, and a cough so violent that many were in danger of suffocation. The first days it was without spitting, but about the seventh or eighth day much viscid phlegm was spit up. Others (though fewer) spit up only water and froth. When they began to spit, cough and shortness of breath were easier. None died, except some children. In some it went off with a looseness; in others, by sweating. Bleeding and purging did hurt. Bole armoniac was chiefly useful with oily lintuses, pectoral troches, and decoctions. Where blood was let, the disease proved malignant and pestilential, being attended with a violent, cruel, and uncard-of-malignity, and made bad work. It was preceded by a long moist air. We shall find it again in 1557, '80, and '97, etc."

Of the outbreak of 1557 it is said that "in some more remote countries presently came, after a very strong, cold north wind, many catarrhs,

quickly followed by a most severe cough, pain of the side, difficulty of breathing, and a fever. The pain was neither violent nor pricking, but mild. The third day they expectorated freely. The sixth, seventh, or eighth day all who had that pain of the side died, but such as were blooded the first or second day recovered on the fourth or fifth; but bleeding on the last two days did no service. Slippery, thickening lintuses were found of most service. Broths or spoon-meats, or moist foods, were good; but where the season continued still rainy, the case was very different, bleeding or purging was then so dangerous that at Mantua Carpentaria, near Madrid, 2,000 who were let blood of, died. There it began with a roughness of the jaws, small cough, then a strong fever, with a pain of the head, back, and legs; some felt as though they were corded over the breast and had a weight at the stomach; all which continued to the third day at farthest, then the fever went off with a sweat or bleeding at the nose. In some few it turned to a pleurisy or fatal peripneumony."

It is chronicled that in 1580, "the weather for some years past having been extraordinary moist, wet, and rainy, wind south, at the rising of the dog star came a cold, dry north wind. From the middle of August to the end of September raged a malignant epidemic catarrh: it began with a pain of the head and feverish heat. Some were disposed to sleep, others to watching; presently followed a dry cough. Pain of the breast, harkness, and roughness of the throat, weakness of the stomach; at last a terrible panting for breath, like dying persons. This disease raged all over Europe at least, and prevailed for six weeks. The same epidemic returned in October and November that year. At the same time a fever of the same kind prevailed all over the world, and was the same with that of 1557, as the catarrh and disorder of the breast were the same with those of 1510, 1591, 1597, 1610, etc., over all Europe, with a rheum and distillation from the head, fever, pain, heaviness, hoarseness, weakness, etc." And so this ancient chronicler describes the epidemic of 1889-'90.

For proof that the disease of 1510 was identical in general outline with *la grippe*, one has only to turn to Forry's article on "Epidemic Influenzas," written in reference to the then prevailing catarrhal fever, in the "New York Journal of Medicine" for July, 1843. The writer begins by saying that "the history of disease presents few subjects of greater interest than the epidemic influenzas which have of late years prevailed with more than ordinary frequency—a disease marked with characters so striking as to render its identification with previous epidemics a question admitting of no doubt. . . . It is here, in the city of New York, as cities always abound in the exciting causes of epidemics, that the disease seems to have its stronghold. The population appears, indeed, to have experienced an almost universal attack, neither age, sex, nor any condition of life being exempt from it. Many ships have suffered an invasion of the disease in mid-ocean, which affords evidence, independent of the characteristic symptoms of the disorder, that the disease really belongs to the class of epidemic influenzas. Acute bronchitis and common catarrhal fever are perhaps the only diseases with

which it may be readily confounded; and the single fact that it prevails likewise on the ocean, where, as the temperature is equable, catarrhs are little known, indicates a peculiar affection, which can not be ascribed to ordinary atmospheric vicissitudes—the existence of a peculiar virus, whatsoever its nature, which, like that of measles, scarlatina, or epidemic cholera, is propagated under certain laws. And this conclusion is further substantiated by the two facts, that the malady attacks individuals indiscriminately, without reference to any predisposition to catarrhal affections, and that it is attended with a much greater depression of the powers of life, both corporeally and mentally, and with more local pain, than are proportionate to the severity of the catarrhal symptoms. Indeed, many individuals, after forty-eight hours' confinement by this disorder, look like convalescents from some severe and protracted disease. It is the *Rheuma epidemicum* of Sauvages, the *Catarrhus à contagio* of Cullen, the *Catarrhus epidemicus* of Swediaur and Good, the *Morbus catarrhalis* of Ehrman, the *Febris catarrhalis epidemica* of Huxham, the *Defluxio catarrhalis* of Young, the *Febris remittens catarrhalis* of Macbride, and the *Catarrhe pulmonaire* of Pinel. By the French writers it is variously known by the names of *Grippe*, *Folette*, *Coqueluche*, *Petite peste*, *Rhume epidémique*, *Fièvre catarrhal epidémique*; by the Germans, *Epidemischer Schnupfenfieber*, *die Russische Krankheit*, *Russische Katarrh*, *Influenz*, *Huhnerzipf*, *Blitzkatarrh*; by the Italians, *Influenza*, *Catarro Russo*; by the Spaniards, *Influenza Rusa*; by the Swedes, *Snufsjuka*. With us the disease is mostly known by the terms *Influenza* and *la Grippe*. The former is the Italian for 'influence,' implying a supposed astral or terrestrial agency in its production; and the latter is derived from *gripper*, 'to gripe,' 'to catch hold of,' being the vulgar French appellation.

"In 1729 and 1730, during five months, the influenza spread throughout Europe, having attacked 50,000 persons at Milan, 60,000 at Rome, and the same number at Vienna. In London it cut off 1,000 a week, in September. The epidemic influence seemed to continue in operation; and in 1732-'33 it again spread over Europe, and appeared in America. It reappeared in 1742-'43, overrunning Europe. The year 1762 is characterized by the next remarkable visitation of the influenza. Although it extended over a large portion of Europe, yet few died, except the old, the asthmatic, and the consumptive. In America it had prevailed in the preceding year. The next epidemic catarrh, in the order of time, was that noticed in Europe in 1775, and described by Dr. Fothergill. This visitation was mild, and most of the deaths, unlike preceding epidemics, were attributed to the omission of bleeding. In the spring of 1782 influenza again raged in England, Ireland, and Scotland, having, as usual, approached from the east and south. By Dr. Haygarth the disorder was considered contagious. The influenza of 1803, which also advanced in a northerly direction, was taken advantage of for collecting a great number of notices of the epidemic from different parts of the country; and in this the London Medical Society set a laudable example by proposing a set of queries to its corresponding members.

The epidemic visited the United States the same spring; and here the disorder was often followed by severe dysentery, while in France ophthalmia as frequently ensued. The influenza of 1830, though generally mild, was perhaps universal over the earth's surface. In its wide diffusion this epidemic spread from the East over the Americas, and in many places it was the precursor of epidemic cholera. The epidemic reappeared in 1833, and lastly in 1836-'37. At the latter period it existed simultaneously at Sydney, at the Cape of Good Hope, and on the shores of the Baltic."

Concluding a *résumé* of the history of the influenza from 1510 to 1837, this author (Forry) says medical records show that the visitation occurs, on an average, once in ten years. Still more important he considers the fact that, of all epidemics, taken in the aggregate this has proved the most destructive—an inference that receives additional force from the well-grounded opinion that for years after the disappearance of the epidemic a modified condition of the atmosphere may remain, causing liability to kindred affections.

Although the accounts of the phenomena attending this epidemic, in its different visitations, abound in discrepancies, yet in many of the descriptions we find, either as precursor or attendant signs, extraordinary vicissitudes of weather, thick or offensive fogs, easterly winds, and diseases, often of a similar kind, among horses, dogs, and cattle. For example: Short says that "thick, ill-smelling fogs preceded some days the epidemic catarrh of 1567. July, August, and September had been very hot and dry; and in the end of September came a very strong, cold north wind." According to De Jussieu, "the influenza of the spring of 1733 appeared in France immediately after offensive fogs." At Edinburgh, at this time, coughs and running from the nose in horses were universal, just before the disease attacked men. In the epidemic catarrh of 1755 the disease in France, according to Petit, was ushered in by thick, noisome fogs, and a cold, rainy autumn; and in England, before the influenza broke out, Dr. Anthony Fothergill says, the disease was general among dogs and horses. As regards the influenza of the spring of 1782, Dr. Parr says horses were affected with a cold at the same time near Exeter; and, in reference to this epidemic, at Petersburg, Maertens says: "On a cold night the thermometer rose thirty degrees of Fahrenheit; the next morning 40,000 people were taken ill with the influenza." Huxham remarks that "the cause of epidemic catarrh seems to depend on a thick, moist, and cold air." Others have indulged in the speculative idea that the noxious matter diffused is dependent on animalculæ. By many writers the prevalence of this disease has been attributed to contagion, Cullen having designated it *Catarrhus à contagio*. From inquiries instituted by Dr. Haygarth in ten towns of Cheshire, it appears that in seven instances the first cases presented themselves in houses visited by persons who had arrived from affected places. In the visitation of 1836-'37 a similar observation was made. On the other hand, there were phenomena that seemed absolutely inexplicable on the doctrine of contagion—as, for instance,

the extraordinary rapidity of its diffusion over large tracts of the earth's surface, there being many accounts of its having attacked whole kingdoms at once, and also the occurrence of the disease in ships that had put to sea some weeks before the epidemic appeared at the ports from which they sailed. This epidemic, like all others, has, at every period, maintained certain prominent characteristics; and, like others, it has also, in its different visitations, exhibited some diversity of symptoms, according to the season of the year, the endemic character of the locality, and the constitution of the individual. Although uncomplicated influenza rarely destroys life, yet the ratio of fatality, as deduced by Ozanam from a calculation of the mortality of all the recorded accounts of epidemic catarrh, is not less than two per cent. of those attacked. The sequelæ have, in many instances, been more dangerous than the primary malady; and these subsequent affections often bear no relation, as regards their severity or danger, to the violence of the epidemic seizure. As the tissue upon which the force of the disease is chiefly expended remains peculiarly susceptible of derangement, a liability to chronic bronchitis and asthmatic affections, to rheumatic and neuralgic disorders, and to intestinal irritation, often continues for several years.

The consensus of medical experience and opinions as to the scourge of 1889-'90 may be briefly summed up for general comparison. It was thought (by one observer) that in its earlier stages the disease resembled cerebro-spinal meningitis; that the most severe manifestation of the symptoms, as well as the greatest suffering and danger, had been during the first and second days, excepting, of course, those cases in which pneumonia and bronchitis supervened as complications. This disease appeared to differ from all other diseases supposed to be of microbic origin. From cerebro-spinal fever it differed in that the cases of influenza were multiple in a family. This was evidence of the contagious nature of the affection, which was widely disseminated through the atmosphere, by which means the infection might be conveyed. There seemed to be no other explanation of the rapid and universal spread of the disease, except that it was carried by the winds. The period of incubation appeared to be from one to five days. The disease did not, as a rule, attack children or persons over sixty-five years of age. A very fatal type of pneumonia, attributable to the epidemic, developed, in the event of imprudent exposure, after the subsidence of the acute symptoms. To the high mortality rate of the last weeks of 1889 and the first of 1890, from pneumonia and allied inflammatory conditions, the epidemic had contributed as an initial factor. The contagiousness of the disease was by no means assured, but its epidemic character seemed evident. It was not self-protective, the liability to its recurrence in the same individual having been demonstrated. There was no reason to assume that its existence was influenced by climate. The erythematous symptoms characteristic of former visitations had been noted. The disease appeared under many varieties, making any direct classification of the symptoms impossible. The following symptoms might exist together, or only in part:

Brief malaise, headache, chill, fever, pains over the whole body, especially in the back and loins; suffusion of the eyes; bronchitis; a characteristic cough; gastro-intestinal irritations; skin eruptions; delirium; great prostration, physical and mental; and certain violent neuralgias. The treatment, when directed promptly to the "chylipoetic viscera," relieving the intense congestion by active catharsis, and to the lowering of the temperature by any of the standard antipyretics, was usually effective in securing an early subsidence of the initial symptoms. The administration during the second stage, which was that of depression, of stimulants, such as digitalis, with the view of warding off the tendency to hypostatic or catarrhal pneumonia, was undoubtedly indicated. It was the duty of the profession as a whole to warn the public against what seemed to be really the only danger connected with the epidemic; this lay in the resumption of normal vocations before recuperation was thoroughly established, and in exposure and fatigue during the stage of convalescence. If the prognostications of former observers are of value, the general depression and tendency to a certain class of ailments follows for some time in the wake of such visitations. Even after the so-called period of depression is past, convalescence well established, and vocations resumed, there is a decided lack of tone.

INTERNATIONAL AMERICAN CONFERENCE. The Congress of the Three Americas, which assembled at Washington, D. C., Oct. 2, 1889, originated in an act of Congress, approved May 24, 1888, by which the President of the United States was requested and authorized "to invite the several governments of the republics of Mexico, Central and South America, Hayti, and Santo Domingo, and the Empire of Brazil to join the United States in a conference to be held at Washington, at such time as he may deem proper in the year 1889, for the purpose of discussing and recommending for adoption to their respective governments some plan of arbitration for the settlement of disagreements and disputes that may hereafter arise between them, and for considering questions relating to the improvement of business intercourse and means of direct communication between said countries, and to encourage such reciprocal commercial relations as will be beneficial to all and secure more extensive markets for the products of each of said countries."

As early as 1825 the policy of more intimate commercial relations with the countries of Central and South America was advocated by Henry Clay, then Secretary of State, and delegates were appointed to an international American Congress to be held in Panama in June, 1826, which, however, they failed to attend. Invitations to meet the United States in a similar Congress were sent the Spanish-speaking nations in 1881, and were generally accepted, but the enterprise was afterward abandoned. It was revived by a commission appointed under act of July 7, 1884, "to ascertain and report upon the best modes of securing more intimate international and commercial relations between the United States and the several countries of Central and South America," which held public conferences with merchants of Boston, Baltimore, Philadelphia, New

York, New Orleans, and San Francisco, and afterward visited the capital cities and commercial centers of the countries specified. The proposition for an international congress was cordially approved by all the governments, with the exception of Chili, which held the subject under advisement. The reports of this commission to Congress set forth the principal obstacles ascertained in the way of trade, which it was the object of the Congress of 1889-'90 to remove. Section 2 of the act of May 24, 1888, provided:

That in forwarding the invitations to the said governments, the President of the United States shall set forth that the conference is called to consider:

1. Measures that shall tend to preserve the peace and promote the prosperity of the several American states.

2. Measures toward the formation of an American customs union, under which the trade of the American nations with each other shall, so far as possible and profitable, be promoted.

3. The establishment of regular and frequent communication between the ports of the several American states and the ports of each other.

4. The establishment of a uniform system of customs regulations in each of the independent American states to govern the mode of importation and exportation of merchandise and port dues and charges, a uniform method of determining the classification and valuation of such merchandise in the ports of each country, and a uniform system of invoices, and the subject of the sanitation of ships and quarantine.

5. The adoption of a uniform system of weights and measures, and laws to protect the patent rights, copyrights, and trade-marks of citizens of either country in the other, and for the extradition of criminals.

6. The adoption of a common silver coin, to be issued by each government, the same to be legal tender in all commercial transactions between the citizens of all of the American states.

7. An agreement upon and recommendation for adoption to their respective governments of a definite plan of arbitration of all questions, disputes, and differences that may now or hereafter exist between them, to the end that all difficulties and disputes between such nations may be peaceably settled and wars prevented.

8. And to consider such other subjects relating to the welfare of the several states represented as may be presented by any of said states which are hereby invited to participate in said conference.

The President was authorized to appoint ten delegates to represent the United States at the conference, to serve without compensation other than their actual necessary expenses. The number of delegates to represent the other states was left to their election, but it was expressly provided that in the disposition of questions no state should be entitled to more than one vote. The sum of \$75,000 was appropriated for incidental expenses, and the daily publication, by the public printer, of proceedings in the English, Spanish, and Portuguese languages was provided for, under the direction of the Secretary of State. An additional appropriation of \$50,000 was made March 2, 1889. Eighteen invitations, extended to as many states, were accepted by all with the exception of Santo Domingo, and delegates were named. The number was reduced Nov. 25, 1889, by the resignation of Señor Lafayette Rodrigues Pereira, of Brazil, who refused to accept the renewal of powers tendered by the Provisional Government of that country. The Wallach mansion, corner of Eighteenth and I Streets,

N. W., in Washington, was prepared for the meetings of the Congress, and here, on the morning of Oct. 2, the delegates assembled, the foreign representatives being received with an address of welcome by Hon. James G. Blaine, who, in accordance with established precedent, as head of the Department of Foreign Affairs of the country that issued the invitations, was chosen to preside. Credentials were subsequently presented at the State Department, and the Congress was received by the President.

On the morning of Oct. 3, 1889, the delegates set out on a tour through the commercial and manufacturing cities of the United States. A single special engine and train conveyed the party through Maryland, Delaware, Pennsylvania, New Jersey, New York, Rhode Island, Massachusetts, New Hampshire, Maine, Connecticut, Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Nebraska, Missouri, and Kentucky, a distance of 5,825 miles. Innumerable manufacturing and other establishments of New England and the West were visited, and handsome entertainments were tendered the Congress by the cities along the route. On Nov. 13 the party returned to Washington, after an absence of forty-two days, and on Nov. 18 proceeded to the discussion of business. Two secretaries were elected, the delegation of the United States having choice of one, and the foreign delegations that of the other. The following is a list of the delegates, secretaries, and *attachés* of the International American Conference, arranged in the order of precedence as determined by lot, Nov. 20, 1889:

President, James G. Blaine.
Secretaries, H. Rensen, Fidel G. Pierra.
Executive Officer, William E. Curtis.
Disbursing Officer, Haughwout Howe.
Sergeant-at-Arms, J. G. Bourke, Captain, U. S. A.
Assistant Sergeant-at-Arms, Henry R. Lemly,
First Lieutenant, U. S. A.
Surgeon, H. C. Yarrow, A. A. Surgeon, U. S. A.
Attachés, E. W. P. Smith, E. A. Trescott.
HAYTI.—Delegate, Arthur Laforestrie; Secretary,
H. Aristide Preston.
NICARAGUA.—Delegate, Horatio Guzmán; Attaché,
R. Mayorga.
PERU.—Delegate, F. C. C. Zagarra; Secretary, Leopoldo Oyague y Soyer; Attaché, Manuel Elguera.
GUATEMALA.—Delegate, Fernando Cruz; Secretary,
Domingo Estrada; Attaché, Javier A. Arroyo.
URUGUAY.—Delegate, Alberto Nin; Secretaries,
Henry Dauber, Diomisio Ramos Montero.
COLOMBIA.—Delegates, José M. Hurtado, Carlos Martínez Silva, Climaco Calderon; Secretary, Julio Rengifo.
ARGENTINE REPUBLIC.—Delegates, Vicente G. Quesada, Roque Saenz Peña, Manuel Quintana; Secretaries, Federico Pinedo, Ernesto Bosch.
COSTA RICA.—Delegate, Manuel Aragon; Secretary,
Joaquín Bernardo Calvo.
PARAGUAY.—Delegate, José S. Decoud.
BRAZIL.—Delegates, J. G. do Amaral Valente, Salvador de Mendonça; Secretaries, José Augusto Ferreira da Costa, Joaquim de Freitas Vasconcellos; Attachés, Alfredo de Moraes Gomes Ferreira, Mario de Mendonça.
HONDURAS.—Delegate, Jeronimo Zelaya; Secretaries, E. Constantino Fiallos, Richard Villafranca.
MEXICO.—Delegates, Matías Romero, Enrique A. Mexia; Secretary, Enrique Santibañez.
BOLIVIA.—Delegate, Juan F. Velarde; Secretary, Melchior Obarrio; Attachés, Alcibiades Velarde, Mariano Velarde.

UNITED STATES.—Delegates, John B. Henderson of Missouri, Cornelius N. Bliss of New York, Clement Studebaker of Indiana, T. Jefferson Coolidge of Massachusetts, William Henry Trescott of South Carolina, Andrew Carnegie of Pennsylvania, Morris M. Esteé of California, John F. Hanson of Georgia, Henry G. Davis of West Virginia, Charles R. Flint of New York.

VENEZUELA.—Delegates, Nicanor Bolet Peraza, José Andrade, Francisco Antonio Silva; Secretary, Micanor Bolet Monegas.

CHILI.—Delegates, Emilio C. Varas, José Alfonso; Secretaries, Carlos Zañartu, Paulino Alfonso, Domingo Peña Toro.

SALVADOR.—Delegate, Jacinto Castellanos; Secretary, Samuel Valdivieso; Attaché, J. A. Rossi.

ECUADOR.—Delegate, José María Plácido Caamaño; Secretary, Nicolás Yribas; Attaché, Antonio Echeverría.

Delegates to the International American Conference who also represent their respective countries as envoys extraordinary and ministers plenipotentiary to the United States, are: Señors Quesada of the Argentine Republic, Velarde of Bolivia, Valente of Brazil, Varas of Chili, Hurtado of Colombia, Caamaño of Ecuador, Cruz of Guatemala, Zelaya of Honduras, Romero of Mexico, Guzmán of Nicaragua, and Zagarra of Peru. Señor Peraza, of Venezuela, is *Chargé d'Affaires* to the United States.

The Conference proceeded slowly with its organization. On Dec. 5, 1889, sessions were ordered to be conducted with closed doors. On Dec. 13 the following list of committees was announced:

Executive.—Mr. Zagarra (First Vice-President) of Peru, Mr. Romero (Second Vice-President) of Mexico, Mr. Bliss of the United States, Mr. Hurtado of Colombia, Mr. Mendonça of Brazil, the President of the Conference, *ex officio*.

On Customs Union.—Mr. Valente of Brazil, Mr. Henderson of the United States, Mr. Saenz Peña of the Argentine Republic, Mr. Romero of Mexico, Mr. Martínez Silva of Colombia, Mr. Alfonso of Chili, Mr. Guzmán of Nicaragua, Mr. Bolet Peraza of Venezuela.

On Communication on the Atlantic.—Mr. Saenz Peña of the Argentine Republic, Mr. Coolidge of the United States, Mr. Mendonça of Brazil, Mr. Decoud of Paraguay, Mr. Laforestrie of Hayti.

On Communication on the Pacific.—Mr. Caamaño of Ecuador, Mr. Varas of Chili, Mr. Esteé of the United States, Mr. Castellanos of San Salvador, Mr. Mexia of Mexico.

On Communication on the Gulf of Mexico and the Caribbean Sea.—Mr. Aragon of Costa Rica, Mr. Guzmán of Nicaragua, Mr. Calderon of Colombia, Mr. Hanson of the United States, Mr. Antonio Francisco Silva of Venezuela.

On Railroad Communication.—Mr. Velarde of Bolivia, Mr. Davis of the United States, Mr. Mexia of Mexico, Mr. Cruz of Guatemala, Mr. Zelaya of Honduras, Mr. Castellanos of San Salvador, Mr. Carnegie of the United States, Mr. Aragon of Costa Rica, Mr. Martínez Silva of Colombia, Mr. Andrade of Venezuela, Mr. Caamaño of Ecuador, Mr. Zagarra of Peru, Mr. Varas of Chili, Mr. Quintana of the Argentine Republic, Mr. Nin of Uruguay, Mr. Valente of Brazil, Mr. Decoud of Paraguay.

On Customs Regulations.—Mr. Nin of Uruguay, Mr. Alfonso of Chili, Mr. Romero of Mexico, Mr. Calderon of Colombia, Mr. Flint of the United States, Mr. Mendonça of Brazil, Mr. Davis of the United States, Mr. Aragon of Costa Rica, Mr. Bolet Peraza of Venezuela.

On Port Dues.—Mr. Bolet Peraza of Venezuela, Mr. Laforestrie of Hayti, Mr. Varas of Chili, Mr. Studebaker of the United States, Mr. Nin of Uruguay.

On Sanitary Regulations.—Dr. Guzmán of Nicaragua, Mr. Valente of Brazil, Mr. Zagarra of Peru, Mr. Hanson of the United States, Mr. Andrade of Venezuela, Mr. Laforestrie of Hayti, Mr. Nin of Uruguay.

On Patents and Trade-marks.—Mr. Decoud of Paraguay, Mr. Carnegie of the United States, Mr. Calderon of Colombia.

On Weights and Measures.—Mr. Castellanos of San Salvador, Mr. Antonio Francisco Silva of Venezuela, Mr. Studebaker of the United States.

On Extradition.—Mr. Zelaya of Honduras, Mr. Trescot of the United States, Mr. Saenz Peña of the Argentine Republic, Mr. Quintana of the Argentine Republic.

On Monetary Convention.—Mr. Mexia of Mexico, Mr. Estee of the United States, Mr. Martinez Silva of Colombia, Mr. Alfonso of Chili, Mr. Coolidge of the United States, Mr. Velarde of Bolivia, Mr. Zelaya of Honduras.

On Banking.—Mr. Hurtado of Colombia, Mr. Mendonça of Brazil, Mr. Varas of Chili, Mr. Flint of the United States, Mr. Aragon of Costa Rica.

On International Law.—Mr. Cruz of Guatemala, Mr. Quintana of the Argentine Republic, Mr. Trescot of the United States, Mr. Alfonso of Chili, Mr. Caamaño of Ecuador.

On General Welfare.—Mr. Henderson of the United States, Mr. Quintana of the Argentine Republic, Mr. Velarde of Bolivia, Mr. Bolet Peraza of Venezuela, Mr. Hurtado of Colombia, Mr. Valente of Brazil, Mr. Cruz of Guatemala.

On Rules.—Mr. Alfonso of Chili, Mr. Quintana of the Argentine Republic, Mr. Trescot of the United States, Mr. Caamaño of Ecuador, Mr. Romero of Mexico, Mr. Castellanos of San Salvador, Mr. Valente of Brazil.

The Congress then adjourned until Jan. 2, 1890, and spent the time from Dec. 16 to Dec. 21 in New York.

In his address of Oct. 2, 1889, outlining the importance and duties of the International American Conference, Mr. Blaine said: "The aggregate territorial extent of the nations here represented falls but little short of 12,000,000 square miles, more than three times the area of all Europe and but little less than one-fourth part of the globe, while in respect to the power of producing the articles which are essential to human life and those which minister to life's luxury they constitute even a larger proportion of the entire world. These great possessions today have an aggregate population approaching 120,000,000; but, if peopled as densely as the average of Europe, the total number would exceed 1,000,000,000."

Statistics of Trade.—In connection with the deliberations of the International American Conference it is interesting to consider that the trade of the 50,000,000 people south of the Rio Grande river and the Gulf of Mexico amounts yearly to \$1,000,000,000, nearly equally divided between exports and imports. The foreign commerce of the countries in the temperate zone of South America has of late years increased with amazing rapidity, the gain from 1870 to 1884 being from \$709,000,000 to \$1,014,000,000, or 43 per cent. The increase in the same period was for Great Britain 27·2 per cent., for France 45·6 per cent., for the United States 86·7 per cent. The total annual commerce of Mexico amounts to about \$70,000,000, of which \$40,000,000 are exports and \$30,000,000 imports. That of the five Central American republics varies from \$36,000,000 to \$40,000,000. The usual annual commerce of the five following South American states is:

STATES.	Imports.	Exports.	Total.
Colombia.....	\$15,000,000	\$15,000,000	\$30,000,000
Venezuela.....	.....	.....	27,500,000
Ecuador.....	10,000,000	11,000,000	21,000,000
Peru (since war with Chili).....	.....	.....	None.
Bolivia.....	10,000,000	10,000,000	20,000,000

That of the five remaining in 1888 was:

STATES.	Imports.	Exports.	Total.
Chili.....	\$50,000,000	\$78,000,000	\$128,000,000
Argentine Republic.	172,410,000	108,280,000	280,690,000
Uruguay.....	29,477,448	28,008,254	57,485,702
Paraguay.....	3,289,757	2,588,608	5,878,366
Brazil.....	122,000,000	115,000,000	237,000,000

The exports of the Spanish-American countries for 1888, were: To the United States, \$181,000,000; to England, \$61,000,000; to France, \$90,000,000. The value of the articles that reached the United States was estimated as follows: Coffee, \$52,000,000; sugar, \$50,000,000; tobacco, \$18,000,000; rubber, \$12,000,000; hides, \$11,000,000; flax, jute, and hemp, \$5,000,000; drugs, dyes, and chemicals, \$4,000,000; wool, \$2,500,000; fruits, \$2,500,000.

The imports of manufactured merchandise by the Spanish-American countries, were: From England, \$116,000,000; from France, \$75,000,000; from the United States, \$71,000,000.

The articles of which the United States supplied the largest quantities were agricultural implements to the value of \$1,055,000, and oils, \$2,204,000. In these articles there was no competition. Breadstuffs to the value of \$7,363,000; manufactured woods, \$6,720,000; provisions and dairy products, \$5,695,000. Cotton goods were obtained from Great Britain to the sum of \$40,485,000, against \$4,548,000 from the United States, and \$4,202,000 from France. Iron and steel were, from Great Britain, \$21,774,000; from the United States, \$7,509,000; from France, \$2,349,000. But in a dispatch from the British minister at Rio de Janeiro complaint was recently made that, of 252 locomotives in use on 18 railroads of the empire, 213 were manufactured in the United States, and but 28 in Great Britain. The woolen goods imported from Great Britain were valued at \$9,995,000, against \$7,894,000 from France and \$89,000 from the United States.

The infringement of patents and trade-marks of the United States by European rivals is an acknowledged source of difficulty in trade with the Spanish-American states, as is also the failure of manufacturers to provide goods suited to the requirements of merchants in those countries, both as regards quality and preparation and packing for shipment. Manifests of steamship companies showing articles of cargo, traced to their source, prove that producers of the Central and Western States, as well as merchants and manufacturers of the sea-board cities, are interested in the extension of commerce with the countries of Spanish America. The Southern States also anticipate markets for their cotton goods, the manufacture of which is developing. The increase of trade between the United States and Spanish America in the twenty years from 1868 to 1888 was \$92,703,260.

Transportation. — Direct steamship communication is had by the United States with Mexico, the West Indies, Central America, Venezuela, and Brazil, by means of seven regular steamship lines sailing under the flag of the United States.

The amount of money received by steamship companies of the United States, regular and irregular, for transportation of United States mails for 1888 was \$48,072; while the subsidies paid to American ships by the several governments of Spanish America yearly amount to \$219,500. The steamship lines owned by foreign countries and sailing under foreign flags furnishing transportation between ports of the United States and those of Central and South America number twenty-one, excluding "tramp" vessels. An analysis of the carrying trade of the United States with Spanish America shows the respective amounts of exports in 1888 as follows:

DESTINATION.	In American vessels.	In foreign vessels.
To Mexico	\$5,100,000	\$1,849,000
To Central America	3,027,000	1,564,000
To the West Indies	15,649,000	12,219,000
To South America	16,432,000	13,147,000
To Venezuela	2,635,000	402,000

Imports of the United States were carried:

SOURCE.	In American vessels.	In foreign vessels.
From Mexico	\$6,667,000	\$4,682,000
From Central America	4,947,000	2,859,000
From the West Indies	37,015,000	34,550,000
From the British West Indies	10,500,000	2,082,000
From South America	28,745,000	55,610,000
From Venezuela	9,384,000	667,000
From Brazil	10,000,000	43,000,000

One of the most serious obstacles in the way of extended commerce between the United States and South America lies in the "triangular voyages" by English and German ships, immense quantities of merchandise being annually sent from the United States to the countries of South America by way of Bremen, Hamburg, Antwerp, and Liverpool, and sold at a profit after twice crossing the Atlantic.

The Nicaragua Maritime Canal will necessarily enter into the discussions of the International American Conference in its bearing upon the trade of the three Americas as well as that of the world. (For a full description of the canal, see the "Annual Cyclopædia" for 1888.)

As regards the proposed American customs union and the question of reciprocity treaties, it may be briefly said that the principal imports of the United States from Spanish America upon which tax is levied are sugar and wool, while the products peculiar to the United States and not affected by the favored-nation clause, are bread-stuffs, provisions, refined petroleum, and lumber. The total amount of sugar imported into the United States in 1888 was 2,700,248,157 pounds, valued at \$74,243,554, of which 2,103,678,668 pounds were from the Spanish-American countries. For the four years ending June, 1888, it was estimated that the duty from sugar was equal to more than 25 per cent. of the entire revenues from imported merchandise. The export of refined sugar from the United States to Span-

ish America for the year ending June 30, 1888, was 11,943,028 pounds, valued at \$785,696. The yearly exportation of the same commodity from Europe to the Argentine Republic alone is three times that amount. Of the 84,879,546 pounds of carpet wools imported by the United States in 1888, 14,361,463 pounds were from the Spanish-American countries, 25,892,366 from England, 16,474,931 from Russia, 10,778,859 from Turkey, 9,378,038 from France, and 4,628,309 from China. The receipts of wool by France from the Argentine Republic in 1886 were to the value of \$20,000,000, against \$1,178,000 received by the United States in 1888.

By report of the assistant secretary of the New York Board of Trade and Transportation to Special Agent Curtis of the State Department, it is shown that, while little complaint is made by merchants against the administration of the customs laws and regulations of the countries of Central America ("in short, they may be likened to the customs service of the United States"), this is not the case with Mexico. Of the South American States, some fault is found with Chili, Peru, and the United States of Colombia, but especially with Venezuela. In the same report it is said that the unanimous sentiment of men doing business with the countries of Central and South America is in favor of a uniform system of customs regulations, as the only efficient remedy for existing evils.

The total coinage of the world in 1887, was: Gold, \$124,992,465; silver, \$163,411,397. That of the American countries, including the United States, was: Gold, \$33,769,760; silver, \$64,451,610. That of the United States alone was: Gold, \$23,972,383; silver, \$35,191,081.

INVESTMENTS, ENGLISH, IN THE UNITED STATES. One of the most extraordinary migratory movements recorded in history consists in the enormous influx of capital into the United States during the past year from British sources. This capital has been invested in many different industries, and in different sums, varying between \$1,000,000 and \$8,000,000 in a single investment. It is exceedingly difficult to obtain satisfactory information and statistics regarding it; but as far as this has been possible the following account will give a fair and reasonably exact statement. While for many years it has been customary for wealthy persons in Europe to invest their surplus money in the United States, it has been, until within the past two years, mostly in purchases of large tracts of land for the establishment of colonies, or of sheep and cattle ranches. Such speculative investments as these have been made in many of the Southern, Western, and Northwestern States. Kansas, Nebraska, and Colorado contain many large ranches that have been owned and worked for years by Englishmen and Scotchmen. In Florida, the orange industry has been largely prosecuted by means of capital derived from foreign sources. Considerable colonies have been established, in certain cases, in various parts of the country, prominent among which and illustrative of this mode of investment may be mentioned that which was formed at Rugby, Tenn., in 1880. This was originally founded by a company of New England capitalists, but was transferred to an English organization, having a cap-

ital of £150,000, and was placed under the general superintendence of Thomas Hughes, the well-known author of "Tom Brown's School Days at Rugby," after which celebrated school the colony was named. The company purchased 50,000 acres on the Cumberland plateau in Tennessee, having the refusal also of 150,000 more. The land was colonized mainly by English farmers, and was laid out in building sites, farms, parks, etc. It was in Morgan, Scott, Overton, and Fentress counties, and is rich in timber and fertile soil. A town was laid out, a hotel built, and a road seven miles long constructed to connect with the Cincinnati Southern Railroad. A saw mill and brick kiln were erected, roads and bridle paths made, and a park and a cricket ground were added. The plan of colonization adopted was calculated to establish a permanent settlement of sons of English farmers of the better class, in fair circumstances, and with a certain degree of culture. This plan illustrates an ideal kind of investment not generally followed by those having capital to expend; but in this class and such others as have been named all foreign investments were generally made until the movement we are now describing began. Indeed, it is probable that investments in land would have continued to be the only ones employed by British capitalists, had it not been for the fact that the Americans became alarmed at the extent of territory that was thus coming under British influence. The fear that this might possibly dominate at some future time to the disadvantage of American interests was probably the cause of hostile legislation being brought to bear in different States. The Alien Law of Illinois is an example which prohibits any sale of real estate to foreigners. It was designed to prevent the acquirement of farms in that State by a certain British landlord for rack-renting purposes. This statute was eventually evaded by having the ownership of the necessary real estate incorporated, and then acquiring the stock of the company, which legally is personal and not real property.

Books.—During the summer of 1889, rumors were afloat that Messrs. Guggenheimer & Untemeyer, who had been prominent in several operations of the character herein described, had opened negotiations with some of the leading publishers of cheap literature in this country, with the view of buying outright the business as conducted in New York and Chicago. This scheme received some encouragement through newspaper interviews with the publishers named, including George Munro & Co., who, it is said, set their price at \$1,250,000; John W. Lovell & Co., \$500,000; John S. Ogilvie, \$300,000; M. J. Ivers & Co., Hurst & Co., W. L. Allison, and Norman Munro, all of New York; and Rand, McNally & Co., and Belford, Clarke & Co. of Chicago. But the last-named firm went into bankruptcy in September. Samuel Untemeyer, the agent in charge of the matter, declared that he had in his control \$10,000,000 wherewith to effect the purchase.

Breweries.—In 1888 public attention was directed to the fact that an effort was being made on the part of a British syndicate to acquire possession of large brewing interests in the city of New York. A syndicate was formed in

London, and agents were sent to this country, who eventually succeeded in purchasing a two-third interest in the Clausen & Son Brewing Company, with the arrangement that the brewery was to be managed by its former owners, who were to retain one third of the net proceeds for running it. This contract was closed, and the property turned over to the English purchasers, Aug. 24, 1889. During the winter and spring of 1888-'89 further investments in the same industry were made, until by the close of the year, as is alleged, the amount of British money invested in this one industry had reached £6,676,000, or \$33,380,000. Of this amount the John F. Betz & Son, Philadelphia, brewery cost £250,000; the New York Breweries Company, £930,000; the Union Hills Brewery Company, of New Jersey, £115,000; the Frank Jones Brewing Company, of Portsmouth, £1,300,000; the Detroit breweries, £1,000,000; the Washington Breweries Company, £161,000; the Chicago breweries, £1,000,000; the Bartholomay Brewing Company, of Rochester, N. Y., £970,000; the Voight Brewing Company, of Detroit, £185,000; the United States Brewing Company, of New York and New Jersey, £1,100,000; the Baltimore breweries, £190,000; the Peter Schœnhofen Brewery, of Chicago, £1,000,000; the Denver breweries, £200,000. It is interesting in this connection to show quotations of the stocks of these companies on the London market, as they stood at the beginning of September:

NAME.	Par.	Cost.	Quotation.
Baltimore.....	£10	£7	£5½ to 5½
Bartholomay.....	10	7	12½ to 13½
Denver.....	10	6	6½ to 7
Detroit.....	10	10	9½ to 10
Hills.....	10	10	9½ to 10
United States.....	10	10	10½ to 10½
Voight.....	10	5	5½ to 5½
Washington.....	10	10	9½ to 10

In September the purchase was consummated in London of heavy brewing interests in St. Paul, Minn. But it was not alone in the United States that investments were made in breweries, for in August the London and Colonial Financial Company, a syndicate formed for the purpose of handling manufacturing and industrial enterprises, concluded the purchase of Davies's brewery in Toronto for \$1,200,000. Nor was it only a Toronto brewery that was purchased, for during the same month Messrs. Gooderham & Worts sold their distillery in that city to an English syndicate for \$6,000,000. The Peter Schœnhofen Company, of Chicago, after the sale already mentioned, was reorganized and incorporated with an increased capital stock amounting to \$3,000,000. In August negotiations were completed for the sale of the breweries of Omaha for \$1,500,000, and in the same month an English syndicate offered \$660,000 for Henry Weinhard's brewery in Portland, Ore. August was, in fact, the month for the sale of breweries; at that time the Henry Elias brewery, in New York, having a capacity of 90,000 barrels a year, was purchased for \$950,000 by a British syndicate.

Still another enormous London syndicate, having a capital of \$100,000,000, invested as much as \$40,000,000 in America, chiefly in breweries, including \$7,000,000 for three breweries of

Pittsburg and Allegheny City not heretofore mentioned.

Celluloid.—In July it was said that an English syndicate had purchased the great celluloid works at Newark, N. J., and that the same process of expansion of stock and reorganization, which had become familiar to the American public with regard to the breweries purchased by English capitalists, would be adopted in this instance. The celluloid works at Newark are the only ones of the kind in this country. They cover six blocks of ground, and employ more than 800 girls and boys. The works were established about 1875, and are believed to have made the fortunes of those who had owned them. The plant was estimated to be about \$500,000. The alleged purchase was conducted with great secrecy, and members of the company owning the works declined to discuss the matter.

Cotton Mills.—The extraordinary magnitude of these investments may be further gathered from the following circular letter issued by the agents of a London syndicate, which was mailed in New York Aug. 3, addressed to the president and board of directors of every cotton mill in Fall River, Mass.:

GENTLEMEN: It is our desire to secure control of the entire cotton-manufacturing property of Fall River and elsewhere, and we address you for the purpose of obtaining your views as to the probability of your shareholders or a majority being willing to sell or pool their stock upon a basis of mutual advantage. It is, of course, useless for us at this time to set forth our plans in detail. We are pleased to inform you that the Central Trust Company of New York has consented to act as trustee in behalf of both parties. Should the matter meet with your favorable consideration, we would thank you to advise us at an early date, and we will then confer with you personally in regard to details.

GEORGE F. MELLEN,
EMERSON C. McMILLAN,
H. B. WILSON.

One of the members of this committee said the syndicate that had been formed for this purchase had already subscribed more than enough money to buy the entire cotton-milling industry of America; that, in fact, this was what was aimed at, and that operations would not be confined to Fall River, but would extend to Lowell, Lawrence, New Bedford, and the best mills in the country. As the Fall River mills alone had a capital exceeding \$20,000,000, it can be seen what an enormous sum it would take to complete the avowed purpose of the British capitalists. Meanwhile it is to be observed that very much of the negotiation of this nature going on during the year was conducted in secret, and that it was impossible to gain accurate information as to actual purchases and particularly in regard to the cotton-mill industry. It was, however, known that large purchases of stock were made in different mill corporations, and these were believed to have been made in the interest of the English syndicate. Meanwhile a formal proposition was made to many Southern cotton mills by a syndicate of English capitalists for the purchase of their plants with a view of combining their interests in one central trust company.

Dry Goods.—About the middle of September it began to be said that a dry-goods trust was being formed, backed by British capital; and to include among other well-known firms those of

Hogg, Brown & Taylor, of Boston; R. H. Macy & Co., Stern Brothers, B. Altman & Co. and Simpson, Crawford & Simpson, of New York; Brown, Thompson & Co., of Hartford; Sibley, Lindsay & Curr, of Rochester; Callender, McCausland & Troup, of Providence; Campbell & Dick, of Pittsburg; Adam, Meldrum & Anderson, of Buffalo; Forbes & Wallace, of Springfield, Mass.; Divcs, Pomeroy & Stuart, of Reading, Pa.; Denholm, McKay & Co., of Worcester, Mass.; and Alma, Bigelow & Washburn, of Salem, Mass. Excepting the New York firms, those mentioned were already in a trust or organization called the Syndicate Trading Company, established about 1881 by A. Swan Brown, of Hogg, Brown & Taylor, dry-goods merchants of Boston. The object of this company was to purchase dry goods in large quantities on account of the stores that had shares in it, and divide the goods so purchased into suitable lots for each house, by which means the benefit of larger discounts was obtained. From the number of Scotchmen connected with the company, it grew to be generally known in the trade as the "Scotch Syndicate," and the success of the enterprise induced Mr. Brown to undertake a more complete organization in the form of one joint-stock company, backed by English capitalists, leaving the names and management and names of the stores as before. A curious part of the enterprise was the establishment of an immense dry-goods depot at Chicago, which would be the distributing point of the syndicate. This may be called the first practical application of the theories advanced by Edward Bellamy in his romance "Looking Backward."

Grain-Mills and Elevators.—Late in July it was announced that a British syndicate was negotiating for the purchase of the Pillsbury and Washburn mills at Minneapolis. It is said that this purchase is only one of an enormous investment on the part of two London syndicates—the City Contract Company, (capital, \$50,000,000) and the Trustees' and Executors' Company (capital, \$37,500,000), the Lord Mayor of London being the president of the latter company. Among the properties involved in the investment made, which is said to have been \$50,000,000, was a chain of elevators from the Minnesota and Dakota wheat districts to Chicago, flouring-mills at Minneapolis, and breweries in Chicago and the East. The elevators included the 76 Star elevators of Minneapolis, the G. W. Van Duzen system of elevators of Rochester (90 in number), and the Cargill Brothers' elevator system of Minnesota and Dakota. These were in addition to the Pillsbury and Washburn flouring-mills of Minneapolis.

Illuminating Gas.—Early in May a step was made by English capitalists toward the purchase of gas interests in the United States, by the acquisition of the greater part of the stock of the Citizens' Gas-Light Company, of Brooklyn. The English syndicate thus purchasing was known as the International Gas Company, and possessed a new patent process for the manufacture of gas from water and crude petroleum oil, which had met with much success in London, and was about to be introduced in Paris. The head of this company in this country is Charles G. Franklyn, formerly connected with the Cunard

Line of steamers. The same syndicate also purchased a ruling interest in the Union Gas-Light Company of New York.

Iron.—On Sept. 10 at Hokendaugua, Pa., on the occasion of the annual meeting of the Thomas Iron Company, the statement was made that an offer had been made to the directors to sell the works to an English syndicate for \$3,500,000; and the offer of the syndicate was accepted unanimously. The stock of the company was divided into 40,000 shares of \$50 each, whose last quoted price was \$70. The syndicate's offer would bring the value of this stock up to about \$87 a share. The same syndicate negotiated the purchase of the Otis Steel Company, of Cleveland, Ohio, and at the same time were negotiating to buy the immense foundry and machine works of J. H. Bass, in Fort Wayne, St. Louis, and Chicago, the largest of the kind in the country; and also valuable iron-mines in Alabama. It was said that these purchases were part of a well-matured scheme in England to secure control of all the most profitable American iron and steel enterprises, with the intention of forming a trust in those industries. The Thomas Iron Company was established about 1856, with a capital of \$325,000. Since then it has paid its shareholders about \$3,800,000 in dividends, and has increased its capital stock to \$2,000,000. Besides the interest in the industries just named, it was said that English capitalists were negotiating for all the principal iron works in the Republic of Mexico, except the Durango Iron Works, owned by an Iowa company.

Patent Leather.—During the summer English syndicates were in negotiation for the purchase of the patent-leather manufactories of Newark, N. J., where 95 per cent. of the capital invested in the industry is concentrated. There are in the United States twenty-six factories that put enameled and patent-leather upon the market. Twenty-three of these are in Newark. The total capital is about \$5,000,000 and they employ about 4,000 men. The manufacture dates back fifty years, and has grown from an annual production of 3,000 hides to that of 350,000, with a market extending all over the world. With the attempted purchase of this industry the following circular was made public, a pattern, it is said, of those employed by the agents of the British capitalists in their purchase of different interests. The circular was to be filled out by each firm and returned to the agent:

GENTLEMEN: In reply to your inquiry as to the purchase of my tannery, located in this city, I will say that I will sell to you, at any time within ninety days from date, my entire plant used for the tanning of patent, enameled, and other leathers. This includes all my real estate connected with the said tannery, consisting of . . . , worth in open market \$. . . ; my buildings thereon, consisting of . . . , cost to erect in 18 . . \$. . . ; my machinery, consisting of . . . and all parts now used in my said business not above enumerated, cost \$. . . , worth \$. . . ; my chattels thereon, consisting of goods manufactured, unmanufactured, and in course of manufacture, to be taken at valuation at time of sale, and all other chattel property now in or about said tannery and used in said business, worth \$. . . ; material for tanning, consisting of . . . , and all varnishes, coloring-matter, etc., and all other material, tools, implements, fixtures, drying-racks, by-products, or anything else used in or about said tannery premises for the manufacturing, saving, or hand-

ling of the product of the said tannery, for the sum of \$. . . , to be paid to me in cash within sixty days after the contract of sale has been signed. The said sale also includes the good-will and trade of the said establishment; and I agree and promise not to resume the said business, directly nor indirectly, nor directly nor indirectly hold stock in any corporation engaged in said business of tanning or manufacturing patented or enameled leather such as has been manufactured in my factory in the past five years, in the United States or British America, for the period of five years from the date hereof, nor consent to or permit another to use the said name in any way connected with the manufacturing of japanned, patented, or enameled leather.

My sales for two years have averaged \$. . .

The gross cost of material, labor, and incidental expenses have been \$. . .

Schedule of property of . . .

Real estate, about \$. . .

Machinery in good condition, \$. . .

Stock on hand:

Manufactured, \$. . .

Unmanufactured, \$. . .

Outstanding accounts, \$. . .

Profits, net, 1886, \$. . .

Profits, net, 1887, \$. . .

Profits, net, 1888, \$. . .

During July and August a movement was on foot in New England and New York in the interest of English capitalists for the purpose of purchasing the entire tannery industry of those sections. It was said that \$10,000,000 had been pledged by English capitalists to obtain control of the sole-leather tanneries in Maine, Massachusetts, and New York, and that if this venture proved a success the syndicate would have \$50,000,000 more at its disposition for the purpose of extending its control so as to embrace all the tanneries of the country. By Sept. 1, it was alleged, the syndicate had secured control of twenty-three tanneries in the States named, while those of Pennsylvania had been offered for sale to the trust.

Sugar.—Among the various rumors that concerned the establishment and methods of the great Sugar Trust, one that exhibited a certain amount of authenticity was to the effect that its final conclusion would be to fall into the hands of an Anglo-German syndicate, which aimed to control the sugar markets of the world. It was said that English investors had been buying up every sugar-trust certificate they could obtain, and had made large offers for blocks of these, evincing anxiety to obtain all the stock they could. The general plan contemplated bonding, for a short time only, the principal plantations of Cuba, the Philippine Islands, the Island of Java, and the Mauritius, which would thus place the main sources of the raw supply under the control of the syndicate. It was alleged that the capital required to accomplish this gigantic scheme was \$100,000,000.

Various Industries.—On Aug. 29 the statement was authorized by H. H. Warner, manufacturer of medical specifics, of Rochester, New York, that he had agreed to sell out his business for £1,000,000. The interests involved included the Warner proprietary medicines and also a yeast business. Late in August the San Diego (Cal.) Water Works Company sold out its business to an English syndicate for \$1,400,000.

William L. Scott, the Pennsylvania millionaire, who owns nearly all the stock in the Spring

Valley (Ill.) Coal-Mining Company, negotiated with an English syndicate for the sale of the Spring Valley mine, including all the machinery belonging to the company, and 40,000 acres of land, the price at which the entire plant was offered being \$4,000,000.

Finally, it was said specifically, that Messrs. Barnum & Bailey, the circus proprietors, had formed a syndicate, for which the money was furnished by English capitalists, to monopolize the circus and dime-museum business of the United States. The scheme included the Chicago museum of Kahn & Middleton, Austen & Stone, of Boston, two museums in New York, one in Minneapolis, one in St. Paul, one in Cincinnati, one in Philadelphia, one in Providence, one in Pittsburg, one in Detroit, one in St. Louis, one in New Orleans, and the Eden Musée Company of St. Joseph, Denver, and Omaha. The capital set down for this scheme was \$2,000,000.

It has been said by one of the principal agents for English capitalists, engaged in investments of the kind we have described in the United States, that the plan of operation is as follows: The corporations of investors are separately formed with reference to a particular piece of property bought for it (the corporators being different individuals, and the American owners retaining at least a one-third interest in each corporation, and sometimes more). The separate corporations have no connection with one another. The projectors obtain powers of attorney from the American owners of the property under consideration, with conditions and terms of sale. These persons secure the services of responsible financial people in London, who issue a prospectus, containing the division of the capital, the rate of interest, the different owners of shares, the names of the officers, managers, etc., the history of the property, the business of other years, showing sales, earnings, etc. This prospectus is sent out through Scotland, Ireland, and Wales, and sometimes to France and Germany, and particularly to Holland, where there is always plenty of capital seeking investment. The time is mentioned in the prospectus for closing the subscriptions, when the applicants for shares are brought together and the shares are distributed to them in the ratio and in the order in which they have applied, and in proportion to the number of shares. The share-takers are not great capitalists, but are the people generally, many of the subscribers investing but small sums, who go into these schemes because they are dissatisfied with the low rates of interest that previously prevailed. They rely mainly upon the good names of the corporators for the stability of their investments. The refunding of the British loan at 2½ per cent. was the first incident that attracted the attention of small investors to the possibility of obtaining better interest for their money elsewhere. The issue of the companies in London during the past two years amounts to more than \$320,000,000; and it appears that a large part of this investment of capital has come to this country. (See TRUSTS, in this volume.)

IOWA, a Western State, admitted to the Union in 1846; area, 56,025 square miles; population, according to the last decennial census (1880), 1,624,615; capital, Des Moines.

Government.—The following were the State officers during the year: Governor, William Larabee, Republican; Lieutenant-Governor, John A. T. Hull; Secretary of State, Frank D. Jackson; Auditor, James A. Lyons; Treasurer, Voltaire P. Twombly; Attorney-General, John Y. Stone; Superintendent of Public Instruction, Henry Sabin; Railroad Commissioners, Frank T. Campbell, Spencer Smith, and Peter A. Dey; Chief Justice of the Supreme Court, Joseph R. Reed, who resigned early in the year, having been elected to Congress from the Ninth District, and was succeeded on March 12 by Josiah Given by appointment of the Governor; Judges, James H. Rothrock, Joseph M. Beck, Gifford S. Robinson, and Charles T. Granger.

Finances.—The balance in the treasury at the beginning of the biennial period ending June 30, 1889, amounted to \$269,109.01. The amount received from all sources during the period was \$3,450,811. Of the receipts, \$2,346,543.71 accrued from the 2½ mill State levy, \$28,724.15 from interest on delinquent taxes, and \$149,288.48 from insurance companies. The disbursements during the period aggregated \$3,422,406.74, leaving a balance June 30, 1889, of \$297,513.27.

On Feb. 9, 1889, the floating debt of the State, represented by warrants, reached \$560,130.79. Between that date and April 25 the Treasurer called in all except \$95,000 of this amount, and on May 15 a final call was made, offering to redeem the remaining sum on June 28. At the close of the fiscal year, June 30, the entire floating debt had therefore ceased to bear interest, and all except \$39,388.33 of the warrants representing it had been paid. The nucleus of this debt was created in 1883. There still remains a bonded debt of \$245,345.19 due from the State to the school fund. The State tax rate is 2½ mills on the dollar.

Valuations.—The total assessed value of taxable property for 1889 is \$522,567,477.25. Land and town lots are together assessed at \$374,753,112; personal estate at \$103,564,136; railroad property at \$43,591,410; and telegraph and telephone property at \$658,819.25. Included in the assessment are 34,734,579 acres of land, rated at an average value of \$8.18 an acre. The assessed valuation for 1888 was \$505,729,000.

Education.—The following figures present the condition of the public schools for the year ending 1889, compared with that of the year preceding:

ITEMS.	1888.	1889.
Number of youth 5 to 21 years...	639,248	649,606
Enrolled in school	477,184	480,229
Average daily attendance	291,070	304,856
School-houses	12,752	12,879
Value of houses and apparatus...	\$12,384,297	\$12,900,495
Average of schools in days	154	154
Tuition per month per pupil.....	\$1 88	\$1 79
Average monthly salary, males...	\$36 44	\$37 52
Average monthly salary, females...	\$30 05	\$30 87
Brought for'd from former year...	\$2,586,151	\$2,946,135
Receipts during year	\$6,766,553	\$5,878,669
Expenditures	\$6,406,569	\$6,848,128
Carried forward to next year.....	\$2,946,135	\$2,976,076
Permanent school fund	\$4,264,961	\$4,319,442

Taxation.—The following State and local taxes were levied in 1888: State tax, \$1,248,100.77; county tax, \$5,041,491.42; county school tax, \$576,188.89; district school tax, \$5,355,-

393.26; insane tax, \$303,918.84; special taxes, \$858,607.76; corporation taxes, \$1,348,585.40; total taxes, \$14,732,286.34.

Charities.—At the Hospital for the Insane at Mount Pleasant there were 707 patients on June 30, 1887; in the two years following, 753 persons were admitted and 701 discharged, leaving 759 in the hospital on June 30, 1889. The current expenses for 1887-'88 were \$124,888.76, and for 1888-'89, \$134,872.81. The lands and building are valued at \$800,000.

The Hospital for the Insane at Independence contained 791 patients on June 30, 1887; there were admitted 630 during the succeeding two years, and 655 were discharged, leaving 766 on June 30, 1889. For the year 1887-'88 the cost was \$139,865.43, and for 1888-'89, \$142,217.76.

The Hospital for the Insane at Clarinda was opened on Dec. 15, 1888, and on that date 222 patients were admitted, of whom 90 came from the Hospital at Independence and 126 from the Mount Pleasant Hospital. Up to June 30, 1889, 52 patients were received from the counties and 31 patients were discharged, leaving 243 remaining on the latter date. The current expenses to June 30 were \$24,975.76.

The Institution for Feeble-minded Children, at Glenwood, contained 331 pupils at the beginning and 432 at the close of the biennial period ending June 30, 1889. The number admitted during this period was 178; discharged, 77. The expenditures for the two years were \$167,579.70.

At the College for the Blind, at Vinton, 157 pupils were enrolled in 1887-'88, and 177 in 1888-'89. The expenditures for the two years were \$59,797.94.

The Soldiers' Orphans' Home and Home for Indigent Children contained, on June 30, 1887, 42 children classed as soldiers' orphans, and 251 indigent children. On June 30 of this year there were 88 soldiers' orphans and 282 county children. The sum of \$66,111.32 was expended during the two years.

The Soldiers' Home at Marshalltown has been in operation about two years. There were received into the Home prior to Jan. 1, 1888, 53 members; from Jan. 1, 1888, to June 30, 1889, 342; total, 395. Of these, 29 died, 74 were discharged, and 18 dropped from the rolls, leaving 274 present on June 30, 1889. There have been expended during the eighteen months from Jan. 1, 1888, to June 30, 1889, \$62,066.80, of which \$45,862.73 was for support and salaries.

Prisons.—In the State Penitentiary at Anamosa the number of convicts on June 30, 1887, was 313; there were received during the two years succeeding 210, and discharged 299, leaving 224 on June 30, 1889. The expenditures for the two years were \$150,605.68, of which amount \$109,586.47 were for ordinary support. The convicts at this prison are completing its construction. At the Fort Madison Penitentiary the number on June 30, 1887, was 360; there were 400 persons received and 380 discharged during the succeeding two years, leaving 380 on June 30, 1889. The expenditures for the two years were \$128,833.86, of which \$118,294.71 were paid for general support. The receipts from convict labor were \$76,615.87. These, with other receipts, reduced the net expense of the institution to \$50,650.19 for the two years.

The Iowa Industrial School consists of a boys' department at Eldora and a girls' department at Mitchellville. In the former there were 330 boys on June 30, 1887, and 370 on June 30, 1889; in the latter there were 110 girls on June 30, 1887, and 109 on June 30, 1889. The expenditures of the boys' department for the term amounted to \$72,489.41; of the girls', \$28,034.39.

Insurance.—There are in the State 110 co-operative fire and tornado associations. These had risks in force Jan. 1, 1888, \$49,735,089.82, and Jan. 1, 1889, \$59,517,176.60—an increase of nearly \$10,000,000. The people of the State paid for all insurance, exclusive of life insurance, \$4,519,822.93. The companies paid back to the people in losses other than life \$1,240,988.40. In life insurance the people paid in premiums \$1,291,840.90, and the companies paid back to the people in losses \$495,521.55.

Statistics.—The Bureau of Labor Statistics, in its latest report, devotes much space to figures showing the general condition of the laboring class in the State. It presents the following summary of returns received from 2,140 workmen: Number owning homes, 1,167; number of homes mortgaged, 494; number renting, 565; number saved money, 1,081; number in debt, 615; number having life insurance, 731; number having fire insurance, 1,156; number belonging to labor organizations, 724; 1,704 out of the 2,138 have answered the question, "Is prohibition a good thing for the wage workers?" Of these, 1,328 answer Yes, and 376 answer No; 500 have had their wages increased during the past year, and 223 decreased; 1,404 are paid weekly, 11 semi-monthly, and 254 monthly.

Railroads.—In the controversy between the State Railroad Commissioners and the railroads, over the enforcement of rates established by the former, there were pending at the beginning of the year three injunction suits brought in the Federal courts against the commissioners by the Chicago and Northwestern Railroad, by the Chicago, Burlington, and Quincy Railroad, and by the Chicago, Milwaukee, and St. Paul Railroad, respectively (the injunction suit brought by the Rock Island Railroad in the State court having been dismissed), and about forty counter-suits begun by the Attorney-General against each of the above-mentioned roads, except the Chicago, Milwaukee, and St. Paul, to recover the penalty of \$5,000 for violation of the rates established by the commission. The latter suits were in most cases brought under section 27 of the act of 1888, which provides that "any such railroad corporation guilty of extortion . . . shall forfeit and pay the State of Iowa not less than \$1,000 nor more than \$5,000 . . . to be recovered in a civil action by ordinary proceedings instituted in the name of the State of Iowa." They were filed in the State courts, but those against the Chicago, Burlington, and Quincy Railroad were later removed to the Federal court, where a motion was filed that they be remanded back to the State courts. This motion was granted by Judge Brewer on Jan. 22, on the ground that the suits, although brought in the form of civil actions and so styled in the section above quoted, were in their nature and effect criminal prosecutions, and as such, under the law of Congress, can only proceed in the State courts.

In the injunction suit brought by the Chicago, Burlington, and Quincy Railroad against the commissioners, arguments were made before Judge Brewer in December, 1888. The suit was begun to enjoin the commissioners from enforcing the schedule of rates fixed by them in November on the petition of the shippers of Davenport, Dubuque, and Burlington. This petition was made under section 18 of the railroad act. The railroads claimed that, under this provision, the commissioners had power to readjust the rates only in respect to some particular shipment or class of goods brought to their notice by the petition, and possessed no authority thereunder to fix a schedule of charges for all the traffic of a particular road or roads, as has been done in the present case. They also claimed that the November rates were unreasonable. The decision of Judge Brewer was against both of these contentions, and the preliminary injunction prayed for was refused. The court was of opinion that the rates would probably prove compensatory, and the plaintiff company was directed to make trial of them. If actual experience should prove that the rates were too low, relief could then be had by permanent injunction on the final hearing of the case. Immediately upon this decision the railroads signified to the commissioners their intention of observing the new rates, saying that they understood the effect of Judge Brewer's decision to be that the last schedule fixed by the commissioners should be complied with, pending further hearing in the courts. At the same time the commissioners were urged to modify their schedules, and some concessions were obtained in favor of the railroads. But the reduction from previous rates was so great that the companies found it necessary to curtail expenses in order to maintain their dividends. The people found their train service reduced and many conveniences in the movement of trains taken away. The running of trains on many of the branch lines was abandoned, and one or two of the smaller companies discontinued business altogether. Later in the year some of the branch lines were opened by order of the commissioners. The people, however, began to see that they were gaining little by antagonizing the roads, and expressed their opinion in November by defeating the party responsible for recent railroad legislation. On Dec. 17, as a result of long negotiations between the commissioners and the railroads, an adjustment of all legal controversies was made by the following agreement:

In view of the fact that all the railroads of the State have yielded to the rates promulgated by the authority of the State, it is proposed by the undersigned railroad companies that they will, at their own cost, dismiss the suits pending between them and the Railroad Commissioners, provided that in consideration thereof the commissioners, defendants therein, will waive all damages because of the wrongful suing out of the temporary writs of injunction, and it is further provided that the Attorney-General be directed by the necessary authorities to dismiss, at the costs of the State, all suits for penalties now pending brought by the State against any railroad.

In accordance with this, both the injunction suits and the penalty suits were withdrawn. The attitude of the commissioners, and the general policy of the State during the past two

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years, has effectually stopped all railroad extension. The net earnings on traffic in the State of roads reporting to the commission increased from \$10,998,442.90 in 1887-'88 to \$11,861,310.09 in 1888-'89. On Aug. 8 the commissioners rendered an opinion on a petition of Davenport and Burlington shippers to the effect that the law gave them no authority to fix joint rates for through traffic.

Decisions.—On Jan. 28 the United States Supreme Court rendered a decision, in the case of *Kimmish vs. Ball*, sustaining the constitutionality of the Iowa law that makes a person having in his possession in the State any Texas cattle that have wintered south of the southern boundary of Kansas and Missouri liable for any damages that may accrue from allowing them to run at large and spreading Texas fever. It was claimed that this statute was an interference with interstate commerce, and also in violation of constitutional provisions giving the citizens of the several States all the privileges and immunities of citizens of any State. The Supreme Court held that it was simply a requirement that whoever permits diseased cattle to run at large shall be liable for any damage occasioned thereby, and that the question of interstate traffic did not enter into the case.

In the State Supreme Court, on Feb. 7, an opinion was given in the case of *Collins vs. Hills* regarding the legality of sales of liquor in the original packages in which they were imported into the State. The court held that, although the prohibitory law could not prevent the importation of liquors, it could prevent their sale in any form in the State, and that, in forbidding sales in the form above mentioned, it was not attempting to regulate interstate commerce.

Political.—On June 6 a State Convention of the Prohibition party met at Cedar Rapids, adopted a platform, and nominated the following ticket: For Governor, Malcolm Smith; for Lieutenant-Governor, J. O. Murphy; for Judge of the Supreme Court, W. A. Maginnis (who declined the nomination, and was succeeded on the ticket by J. W. Rogers); for Superintendent of Public Instruction, Mrs. C. A. Dunham; for Railroad Commissioner, J. W. Noble.

The Republican State Convention met at Des Moines on Aug. 14. Twenty-five ballots were taken before a choice of candidate for Governor was made. On the final ballot Joseph G. Hutchison received 621 votes, 577 being necessary for a choice. The ticket was completed by the choice of Alfred N. Poyneer for Lieutenant-Governor, Spencer Smith for Railroad Commissioner, Henry Sabin for Superintendent of Public Instruction, and Josiah Given for Judge of the Supreme Court for both the long and the short terms.

The platform included the following:

We reaffirm the principle and policy of State railway regulation. We urge upon Congress the absolute prevention of rebates and discrimination on railways that foster monopolies and prevent competition.

It is the duty of the State and Federal Governments to enact and execute laws to punish trade conspiracies, trusts, and combines designed to limit the production of the necessities of life, unnaturally disturbed, raise prices, and interfere with the natural course of trade.

We reaffirm the past utterances of the Republican party of Iowa upon prohibition, which has become the settled policy of the State, and upon which there

should be no backward step. We stand for the complete enforcement of the law.

We favor the establishment of courts of arbitration for the settlement of differences between corporations and organized labor.

We earnestly indorse the eminently wise, vigorous, and courageous administration of Gov. Larrabee.

The Greenback Labor party met in State convention at Cedar Rapids on Aug. 20, and nominated the following ticket: For Governor, Elias Doty; Lieutenant-Governor, J. M. McDonald; Judge of the Supreme Court, E. M. Farnsworth (for both terms); Railroad Commissioner, Robert Garret; Superintendent of Public Instruction, T. F. Tobin. The platform favors restoration of fractional currency, ownership of railroads by the State, a secret ballot, and free trade. It contains also the following declarations:

That paper money is more convenient than metal, and just as valuable when properly created; therefore we favor a Government issue of paper money in volume sufficient to transact the business of the country on a cash basis, to the exclusion of all other law-created moneys and credits.

We favor the raising of all revenue from a direct tax on land. We also favor the abolition of all other tax collecting and useless burdens that have been established by Congress for the sole purpose of making places for political friends, to the end that our lands may not be overburdened by needless taxation.

On Sept. 4 the Union Labor party held its State Convention at Des Moines, and nominated for Governor, S. B. Downing; for Lieutenant-Governor, Ezra Brownell; for Railroad Commissioner, L. H. Griffith; for Superintendent of Public Instruction, Mrs. H. J. Bellangee; for Judge of the Supreme Court, L. H. Weller for the short term and M. H. Jones for the long term. The platform favors the election of United States senators by the people, loaning money to farmers by the Government at low rates of interest, Government operation of railroads and telegraphs, the Australian ballot system, and reclamation of unearned land-grant claims.

The Democratic State Convention met at Sioux City on Sept. 18. Its nominees were: For Governor, Horace Boies; for Lieutenant-Governor, S. L. Bestow; for Judge of the Supreme Court, William F. Brannan for both terms; for Superintendent of Public Instruction, Thomas M. Irish; for Railroad Commissioner, David Morgan. The platform included the following:

We renew our opposition to the unconstitutional and unjust policy of high-tariff taxation, which robs the many to enrich the few, and we denounce the fallacy of the Republican state platform of Iowa that a high tariff is or can be any protection to the farmer.

We favor the Australian system of voting.

We recognize the doctrine of State and National regulation of railroads and other corporations, and approve the same.

In the interest of true temperance we demand the passage of a carefully guarded license tax law which shall provide for the issuance of licenses in towns, townships, and municipal corporations of the State by vote of the people of such corporations, and which shall provide that for each license an annual tax of \$500 be paid into the county treasury and such further tax as the town, township, or municipal corporation shall prescribe, the proceeds thereof to go to the use of such municipalities.

The campaign was short, and its results were surprising. The returns for Governor showed

that Boies, the Democratic candidate, had received 180,111 votes or 6,573 more than Hutchison, and had been elected. Poyneer, Republican, received 177,612 votes for Lieutenant-Governor, against 176,031 votes, for Bestow, Democrat; and the other Republican candidates were elected by pluralities varying from 3,291 to 8,480, the latter being the plurality of Smith, candidate for Railroad Commissioner. The Union Labor vote averaged about 5,500, the Prohibition vote about 1,200, and the Greenback vote was scattering. This was the first election since 1853 in which the Democrats have been even partially successful, the election of Peter A. Dey to the Railroad Commission in 1888 alone excepted. The overturn was ascribed in part to the anti-railroad attitude of the Republican party, and in part to the internal dissensions aroused in that party by the contest in the nominating convention. The usually large Republican majority in the General Assembly almost disappeared. The Senate of 1890 will contain 28 Republicans, 20 Democrats, 1 Union Labor man, and 1 Independent. The House will be evenly divided—50 Republicans, 45 Democrats, 4 Union Labor men, and 1 Independent. The Union Labor men and the Independents are expected to act in all cases with the Democrats.

Burlington, a city, the county seat of Des Moines County, Iowa, 137 miles southeast of Des Moines, 207 miles by railroad west southwest of Chicago, and 213 miles north by west of St. Louis, on the west bank of Mississippi river. It was settled in June, 1833, was named, for Burlington, Vt., in January, 1834, and was surveyed and incorporated in 1837. In 1875 the city reorganized under the general incorporation laws of Iowa. The population in 1889 was 30,000. At this point the west bank of the Mississippi consists mostly of steep cliffs of carboniferous limestone, furnishing an abundance of excellent materials for building, paving, and the manufacture of lime. The stone quarries are rich in the fossils of the carboniferous era, particularly of the crinoid family. The summits of these cliffs are capped with 30 or 40 feet of diluvial clay, which, with a surface stratum of vegetable mold, forms the table-land of the country. At the base of these cliffs the slope of their *débris* passes into the river. From the water-level to the elevated plateau that marks the beginning of the fertile prairie toward the west is an elevation of about 200 feet. The business part of the city occupies a semicircular basin formed by the convergence of several ravines. The residences are mainly on the upper elevations, and command extended views. The Mississippi here is broad, deep, and beautifully wooded, with verdant islands. The city covers 6,400 acres, and is regularly laid out and well built, the houses being chiefly of brick. In 1889 there were 12 public schools, with 81 teachers and 4,445 pupils, the average attendance being 2,910. Four Protestant and three Roman Catholic parochial schools had an average attendance of 700 pupils. A business college, organized in 1879, had an average annual attendance of 680 students. The Burlington Institute, a Baptist University, founded in 1854, was temporarily closed on account of extensive public improvements affecting the property. There were in 1889 28 church organi-

tions, 3 being Roman Catholic; a Sunday-school attendance of 7,000, a Young Men's Christian Association membership of 300, and a local branch of the American Humane Education Society. Several of the Protestant church buildings are costly and ornate. St. Francis Hospital was built in 1887 at a cost of \$20,000. The public library, founded in 1868, was in 1885 established as a free library and domiciled in the city hall. It has 12,000 volumes. There are two English and one German daily newspapers, two weekly papers, and three monthly periodicals, literary and educational. Burlington is between the extensive coal mines of Illinois and Iowa, with a wealth of forest supplies at hand. The city is also the center of a vast railroad system, and has large lumber and iron interests. Its manufactures include rolling and wire mills; iron, brass, and stove foundries; linseed oil and flouring mills; wagon, implement, desk, furniture, and trunk factories; carriage works, planing-mills, machine shops, broom and woodenware factories, and many others. There are three grain elevators. The jobbing trade covers all lines, and the retail custom comes from both sides of the river. There are three national and two State (savings) banks, having a total working capital of \$1,000,000 and deposits in December, 1889, aggregating \$3,250,000. Other financial institutions are a joint stock fire insurance company, a loan and building association, and a life insurance company. In November, 1889, the post office collected and delivered 293,018 pieces of mail. Burlington has the Holly system of water-works, opened in 1878, with a daily capacity of 6,500,000 gallons; 20 miles of mains and 215 hydrants; cost, \$200,000. The fire department, of twenty-seven members, is paid, the annual expense being \$12,000. The fire apparatus cost \$20,000. The Gamewell alarm is used, there being twenty-one street boxes. The sewage system covers three miles of mains; cost, \$144,000. Street railways traverse all quarters of the city, and the principal streets are paved with brick and granite. Steam heating works supply the business section, and there are two electric light and power companies and one gas company. The Telephone Exchange, in December, 1889, operated 232 instruments. The Commercial Club, composed of fifty merchants, was organized in 1887. In 1889 the assessed valuation of city property, real and personal, was \$5,078,712, on a basis of about one sixth value. The city is noted for its few business failures, its fine natural drainage, and its pure atmosphere. The average temperature is about 50° Fahr. The average annual death-rate is slightly under 10 per 1,000. Among the finer buildings are the Grand Opera House, the Post-Office, the Court House, Masonic Temple, and the Odd Fellows' building. Many of the residences are beautiful and costly, and the city abounds in shade trees. The Union Depot is a modern structure of brick and stone, and sixty-six passenger trains daily enter and leave it. Across the river are lowlands, subject to occasional inundation, which extend eastward seven or eight miles to the Illinois bluffs; and here, opposite the city, are the Chicago, Burlington and Quincy Railroad stock yards, a hotel for stock men and employes, and a saw-mill. The place is known as EAST BURLINGTON.

WEST BURLINGTON, a town in Des Moines County, Iowa, three miles west of Burlington, was incorporated in 1883; the population in 1889 was 1,700. It covers over forty acres. The Chicago, Burlington, and Quincy Railroad Company have nine large construction and repair shops here, employing 700 men. A large foundry, a broom factory, and minor industries give employment to an average of 135 persons. The town in 1889 had one public school with four teachers and 196 pupils, besides one Lutheran and one Roman Catholic parochial school. There were five Protestant churches and one Roman Catholic. There is a system of water works with a daily capacity of 384,000 gallons, and three fire companies. The town is level and well laid out.

IRRIGATION IN THE UNITED STATES.

Between the lower half of the Missouri valley and the Pacific coast stretches an area of the United States where the rainfall is too small to permit successful agriculture, and artificial watering or irrigation becomes necessary. This arid region stretches from the lower Rio Grande northward along the eastern base of the Rocky mountains into Canada as far as Fort Edmonton, Alberta, and up the western side of the Rockies into the interior of British Columbia as far as the open valleys of Thompson and Fraser rivers extend. Southward of the United States it includes all the interior plateau country of northern and central Mexico. Roughly estimated, the dry area of the United States, being that in which precipitation ranges from twenty inches down to about two inches per annum, would, if compactly placed, be nearly 1,000 miles square. The public-land areas within the lines indicated are estimated at 1,388,705 square miles. In Kansas, Nebraska, and the Indian Territory only one third of the whole area is arid; in Oregon and Washington half; in Texas one fifth. The population of this region in 1880 was 1,964,014. The property valuation was stated at \$2,112,150,000. But the dry region is broken by mountain ranges and other limited areas of sufficient rainfall, and its boundaries are continually diminishing as experience enables farmers to cultivate certain crops where a few years ago it was believed nothing would succeed without irrigation. This arid region, so far as practical husbandry is concerned, embraces the whole country from the 100th meridian westward to the Pacific, except the very humid coast district from Northern California to British Columbia and backward along Columbia river, and it amounts to one third of the whole United States (excluding Alaska); while in Canada it embraces a region about the size of Dakota, and in Mexico a still greater expanse. Throughout this whole extent only small favored spots here and there will admit of dependence upon rain.

But it must not be supposed that all the lands in the arid region are irrigable; in fact, the proportion thus useful is very small. Large areas of stony and saline lands occur, as in the Mojave and Colorado deserts and those of the Great Basin. Another large portion is too elevated for agriculture, on account of frosts. A third class of unavailable lands are those found on the foothills, dry *mesas*, and somewhat elevated watersheds, like that between the Platte and the Arkansas, which are out of reach of irrigation by

ordinary methods. The timber or pasturage on these rejected areas may make them otherwise valuable, nevertheless. Furthermore, it must be considered that not all the living streams of the arid region are available for irrigation, the exceptions including the rivers most important geographically. Some of the large streams run in deep gorges so far below the general surface of the country that they can not be used; for example, Colorado river carries a great volume of water, but no portion of it can be utilized within the Territory of Utah from the fact that its channel is so much below the adjacent lands. Generally speaking, the smaller streams can be wholly employed in agriculture, and are those of most service. The irrigable arable space in the West is therefore practically restricted to such lowlands (usually bordering on streams), as can be reached by water led in canals from some head point farther up the stream, and to the extent for which there is water available. Sometimes the land may lie well in a valley, but the water supply may be too small at the proper season to bring it all under irrigation; on the other hand, the stream may furnish more water than can be led upon the contiguous lands, because these are too elevated. Another deduction must be made for cases where the water of certain lakes or streams, otherwise available, is injurious to crops

this often involves a conflict with rights and privileges in other directions. A local water supply is ascertained by measuring the average cubical contents of any lake or reservoir, and the discharge of the streams from which the proposed canals are to draw their water, at the seasons when it is needed. But it is only lately that this has been done accurately in the West, and now competent engineers are everywhere collecting data. In Colorado, for example, gauge rods, current meters, and clock-work registers, recording the mean daily discharge in cubic feet, have been set up by the State Engineer in several important streams, and will be placed in others, until the gauging of all has been made. These results are recorded on maps and flats of the water districts into which the State is divided. In California there are said to be ready for publication fine drainage and topographical maps, each covering the entire State, as well as detail maps showing rivers, ditches, land divisions, and extent and classifications of irrigations in various districts. It may be useful to give the mean discharges on June 15, of a few of the larger rivers of eastern Colorado as indicating what streams of similar size and watershed may be expected to do elsewhere at that season of average high water. These averages are from observations extending over from one to five years.

NAME OF STREAM.	Years observed.	MEAN DISCHARGE, IN CUBIC FEET, ON THE 15TH DAY OF—						
		April.	May.	June.	July.	August.	September	October.
Cache la Poudre	5	198	1,185	2,650	1,135	425	195	140
Arkansas	3	...	1,414	3,717	2,742*	1,283*	1,017	600
South Platte	2	340	600	680*	450*	300	270	270
Clear Creek	2	145	305	485	280	310	195	200
St. Vrain Creek.....	2	80	180	400	205	187	73	70
Bear Creek.....	2	35	105	100	85	85	93	35
Boulder Creek	2	105	195	300	205	185	80	65
Big Thompson Creek.....	1	20	165	840	265	320	75	30
South Boulder Creek	1	65	145	210	135	95	50	45

* In these cases a slightly different date was taken, as giving a truer average. A day of 24 hours is meant in each case.

by reason of the detrimental salts that it contains; and lastly, there is the consumption of water in mining or for milling purposes and for domestic use, diminishing the farmers' resources in equal proportion.

On the other hand, in many localities where river-fed ditches are out of the question, the storage of water in reservoirs or procuring it by artesian wells may supply the deficiency and sustain agriculture. Major John W. Powell has estimated the total reclaimable area within the arid region at enough to make eight States of the size of Indiana, and to support a population of more than 8,600,000 farmers, not counting the village and city population to which such an agricultural populace would give support.

Measurement and Duty of Water.—Little can be done toward systematic irrigation in any region until three facts are fairly well determined: 1, what supply of water can be depended upon; 2, how far this supply will go—that is, how much work a definite unit of water will do—which is called the "duty" of water; and 3, the means of precise measurement of the water. It is also necessary to know the legal rights of the public and of individuals with reference to the use of water for irrigating, since

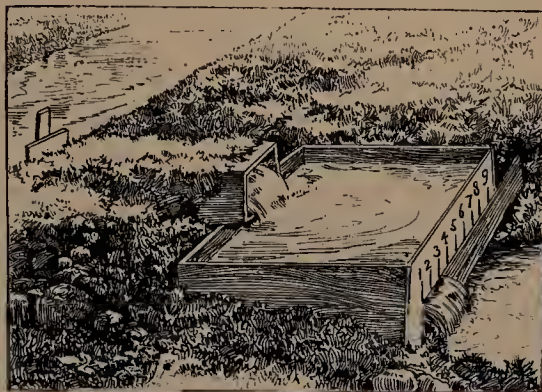
Knowing the source of supply, a man or corporation proposing to build a reservoir or canal, or both, can arrive at the limit of its capacity, after subtracting, if necessary, the water to which there are prior claims. This is merely a matter of calculating the size of the wet cross section of a canal needed to carry a certain maximum of water at a known velocity of current, the latter factor depending, of course, upon the grade. The amount is generally estimated in cubic feet per second, and so far no great difficulty has been encountered. The laws of Colorado and some other States require the insertion, by its owner, near the head of each ditch, of a "rating flume," which is practically only an open box so placed in the ditch as to carry the greatest amount of water likely to enter therein. The water in the square cross section of this flume, when the head gate is raised so as to admit all to which it is entitled, is easily calculated by an officer of the State, and the ditch is officially rated accordingly. Changes of grade and form and accidents compel an annual rerating. To facilitate the measurement of ditches with or without this device, Colorado distributes to her farmers a pamphlet giving directions and algebraic formulæ for determining the carrying capacity of

all sorts of conduits. When it is proposed, first to estimate, and second to measure the amount that each farmer requires to draw from the natural stream or main ditch, a new difficulty arises in the question, "How much do I need for so many acres?" or "How far will a cubic foot of water go?" This is called estimating upon the duty of water.

Duty of Water in Irrigation.—Major Powell took great pains in his surveys of the arid region years ago to determine what amount the above-given unit (a second-foot) would supply, and concluded that the area should be from 80 to 100 acres when applied most economically. This was in Utah, and has usually been accepted for California as well; but it is difficult to say how generally true it is. A great many considerations must qualify any general statement. It depends upon the kind of soil to be watered, some soils holding water well, while others permit almost immediate evaporation or rapid percolation, on whether it is old or new land, or whether the land is used during the whole or only part of the year, on the kind of crops to be raised, on the climate with reference to rainfall and the winds—the latter controlling evaporation—and on the skill and the theories of the irrigator. "Any statement," says Mr. Greene (State Engineer's report, 1888), "in which the duty of water in Colorado is expressed as a definite quantity is arbitrary. It differs with the slightest change in any of the governing conditions. As there is a demand for general results in this matter, it may be said, relative to the duty of water on the plains of Colorado, measured where distributed to the land, that one second-foot running throughout the irrigation season, in addition to about five inches of rainfall during April and May and 4.5 inches during June, July, and August, if distributed with fair care to diversified crops, on what might be called average land, would irrigate from sixty to seventy acres. It is noticed that to accomplish this duty it must be measured where placed upon the land. As in ditches of considerable length, twenty-five to thirty miles, it is not uncommon to lose by evaporation and seepage 25 to 30 per cent. of the water turned into the ditch, the estimated duty of the water turned into the ditch might be placed at fifty acres. But as the ditches are used they lose less water, as a rule, from year to year by percolation; and the lands to which they supply water need, after several applications of the water, in some cases at any rate, less water than at first, and since, as water increases in value it is more economically used, the duty of water, whatever be the locus of the measurement, is continually increasing in Colorado. If the duty of water in connection with some of our streams is considered, it will be found that, notwithstanding all losses by seepage and evaporation, the efficiency of the water can be placed at over 100 acres per second-foot. This is accounted for by the return of much of the water diverted by the upper ditches to the channel of the stream and its rediversion by lower ditches, so that portions of it are again and again distributed to the land. With more storage reservoirs, this duty will be still further increased."

It has been legally determined in California, Colorado, Wyoming, and Utah that the unit of

measurement for the distribution of natural streams shall be one cubic foot per second; and probably the same system will be adopted universally for the sale of water by ditch owners to consumers. But the law of Colorado and the customs of the Southwestern Territories contemplate this sale by the inch. Sale by the inch was very well in early times when canals were few and water abundant, but it was extremely inaccurate and variable under the best devices of measurement and forms of meter. These meters have been many, but all consist of a box receiving water by a little fall, and then delivering it to the consumers' ditch through an aperture, with a sliding door marked in inches. An aper-



COLORADO WATER-METER.

ture one inch square will give, theoretically, in Colorado, about 45 cubic inches of water every second; but this varies with so many changing circumstances that, although a consumer knows how much he pays for, he has no idea how much water he really gets or uses. In many cases, as where a ditch has been built by co-operation, or where a lateral ditch is to be wholly divided among several farms, the proper division of the water becomes important. The ordinary device is a flume set lengthwise and filling the whole ditch, with a partition which diverts just that proportion of water to which each consumer is entitled, whatever may be the total amount in the ditch. Men at the head of the ditch have no interest in anything but their own fraction; but those below, and especially the last man, who can get only what the others leave, and often finds it sadly less than the theory calls for, has a vital interest in the proceedings of the men above him. There may be no fraud in their practices, and still he will not get his share; for it is well known that when a ditch is carrying only a little water, the waste by seepage, evaporation, etc., is much greater than when it has a full and rapid current. Where the dividing partition is permanent, no fraud can be charged, but often this partition is movable, chained in place, and locked by the water commissioner; and in this case it is possible for a dishonest man (to whom the temptation is often very great) to pry open his gate by a wedge so as to admit far more water than could legitimately pass into his gateway. Other methods of division are employed, but a generally satisfactory and trustworthy means of dividing water among consumers has got to be adopted.

Legal Questions.—As the power and value of water becomes so great, to a country dependent upon irrigation, as to make its presence and use the prime necessity of individual and public prosperity, the legal aspect of the matter looms up. The general legal aspect of irrigation the world over has been summarized by Hinton thus: "1. The maintenance of a general sovereignty among all civilized nations over all navigable waters. 2. The Anglo-Saxon or common-law jurisprudence recognizes riparian rights or control over running water, or other natural supplies, of the owners of the land bordering thereon. 3. The Latin jurisprudence, and all codes founded thereon, as well as all the Oriental codes, customs, and systems, place all natural waters as subject to 'servitude'; therefore public property subject to economic individual use through community rules or legislative enactments. In this country the Spanish and Mexican codes and customs in this direction govern in large portions of our southwest territory." Among the Indian and Mexican farmers of New Mexico and Arizona the community customs have worked very well for three centuries; and also in Utah, where the power of the church and the principles of brotherly assistance have hitherto sufficed to regulate this matter and settle any disputes that may have arisen; but in both these instances the operations were simple and the demand for water has not overtaxed the supply available without any very expensive or corporate works. In the larger and differently constituted communities, like California and Colorado, whose systematic irrigation on an extensive scale was necessary, primitive customs like these have been found wholly inadequate. In California—where the Mexican customs and code which had prevailed among the missions and villages of the southern counties previous to the advent of the Americans in 1849 were brought into rude contact with the Anglo-Saxon doctrine of riparian rights, which came in with the Eastern immigrants—the matter has become one of the most important in State legislation, and it is not yet settled. As soon as irrigation in California was begun by the American residents, it was perceived that there would be an irrepressible conflict between the provisions of the common law on the subject of riparian rights and the requirements of agriculture in a region requiring irrigation. The declaration of the former, that every riparian owner is entitled to the undiminished volume of the stream (intended evidently for the safe guarding of the interests of the uses of water power), strikes at the very foundation of the use of water for irrigation, and is incompatible with such use, and, therefore, with the very existence of agriculture in the arid region. Yet this law has been invoked again and again in California by riparian owners claiming the undiminished volume of the streams from those above them, while fully intending to use it freely on their own lands. Numerous costly and protracted lawsuits are pending in the courts of the State, which are embarrassed by the conflict of the acknowledged foundation of American civil law with the manifest equities of the cases before them. The forestalling, by means of the pre-emption, homestead, or timber privileges, of all the water supply from

springs available during the dry season has, in California, created a situation that makes such pre-emptors lords of all they survey, since no one can occupy the adjacent lands without paying tribute for water supply. The control of water used in irrigation ditches in California is almost altogether based upon the right of "prior appropriation" in pursuance of custom rather than law. The agitation of this subject in California culminated in conventions for the recommendation of laws that should settle the matter, and that of 1887 adopted the following propositions as the demands of irrigators:

1. The declaration that every natural stream and water source is public property.

2. That the appropriation for beneficial uses of any such stream must be made under legislative enactments.

3. That all water so appropriated in the State is declared to be a public use.

4. Rates and rents for use are to be fixed by public authority, but must not exceed 7 per cent. on capital actually expended in constructing irrigation works.

In Colorado, common law was at the foundation of procedure, but in irrigation matters it has almost disappeared under the doctrine of priority of appropriation. This arose out of the necessity felt by men working gold placers on the public domain of securing an indefeasible right by first use (beneficial) of the water that was indispensable to the enjoyment of their discovered claims. This doctrine has been legalized by the United States in its mining and land laws, and is recognized by the Constitution of Colorado.

In the matter of State legislation, the water laws of Colorado, now adopted by Wyoming, are conceded to be the most comprehensive and just. That code provides:

The public character of all natural water sources.

Maintains the doctrine of prior appropriation.

That the farmer has first claim in unappropriated water.

That unused water must be returned to the stream.

That irrigation works shall have legal right of way.

That the standard of measurement shall be fixed by law.

Water districts to be formed with commissioners to settle disputes and water masters to distribute; appeals to district courts being allowed.

Registration in county clerk's office of all water appropriations.

Franchises to be granted with power to construct works and levy rents.

Providing for a State engineer.

In a large number of cases the farmers own stock in the ditch corporation whose water they use. To such a company they pay a certain fee, as to a common carrier, for transportation of the water to which their shares of stock entitle them; for any additional supply they must pay as if they were outside customers. The stock of some of the early canals has appreciated enormously in value; and the "water rights" adhering to a piece of cultivated property, or to land accessible to an existing ditch, often constitute the major part of its value.

Methods.—The actual methods of irrigation in the United States are very simple. A main canal or ditch brings water from streams that may be miles away. These canals come from a stream that is fed by the melting of snows on the mountain tops in May, June, and July—just

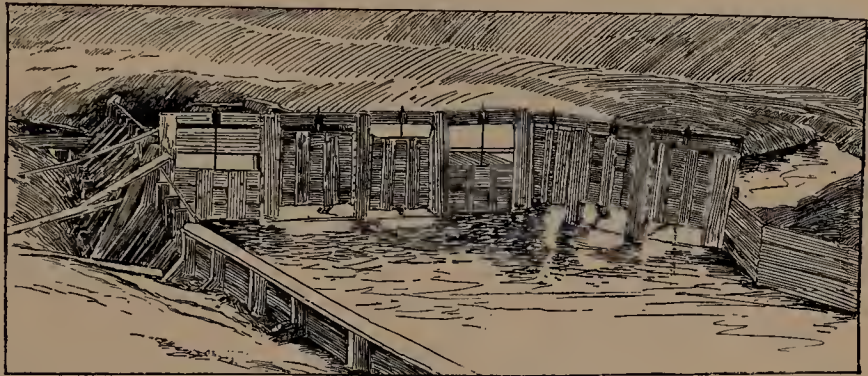
the time when water in the canal is most needed. The canals are carried along with a descent of only one and a half to two feet per mile, winding around hills or uneven ground to maintain a uniform grade. If the ground and the stream descend rapidly, the canal may thus be carried scores of miles, and at its end be twenty, fifty, or one hundred feet above the parent stream. The side canals are taken out at different places and similarly carried over or around uneven land, so that a single main canal may irrigate hundreds of thousands of acres. The "lateral," by means of which each farmer takes his supply of water, comes from the side of the main canal, and extends several rods, or even miles, to the upper side of a field, into a plow furrow nearly on a level, and the water in this case spreads out each way. From this head furrow very small ones are made with a hoe, or quicker with a single-horse small plow. They are run in such direction, required by the conformation of the land, as will give them only a slight descent. A shovelful of earth in the plow furrow at the entrance of these little ditches keeps them closed. When the land needs water, the little gate or sliding board at the canal is raised.

The large plow furrow being filled with water, the irrigator opens or closes the upper ends of the small furrows by taking out a shovel of earth. The operator walks over the field, and where water enough is not flowing out in any place he clips off a bit of earth from the side of the small ditch or furrow, or stops the flow at any point by throwing in a little soil. In this way he can, in an hour or two, give an entire field what would be equal to a heavy soaking rain. This may be done so deeply that the growing crop may flourish through the hottest season or drought, without another irrigation.

Where water goes deep, it is only very slowly evaporated from the surface, while the roots of the crop grow downward so far as to find a good deal of moisture. Usually only two, or at most three, such irrigations are needed on a wheat crop grown on a soil that is literally a dry ash heap. The number of irrigations and the amount of water at each flowing depend upon the character of the subsoil. Some land requires only a single flowing in May or June. Sometimes a flowing about the heading-out time will produce heavy kernels. Sometimes the ground is well flooded before the seed is sown and once or twice afterward unless there is an unusual amount of rain. Most farmers using irrigation rather prefer *no* rain. Having a supply of water in the canal to use whenever needed, they prefer continual hot sunshine, which pushes forward growth most rapidly.

For corn, potatoes, and other crops in rows, for fruit trees, etc., one method is to have the rows run with the downward incline of the sur-

face, then run one furrow along the upper side of the field to receive the water. A small opening with a hoe against the furrows or hollows between the rows allows the water to flow along the furrows and soak into each side of them. The main lateral ditch is usually permanent, made by a few plow furrows, not so deep as to prevent easy driving over it. The small field channels are usually obliterated in the general plowing, new ones being made or left when the crop is put in. A wheat or other grain or grass field is often flooded over its whole surface by openings from the ditch along the higher side. Another method, where land is very valuable and permanent improvements are desirable, is to run perforated pipe, like drain pipe, one and a half to three feet underground, and let water into the heads of them to soak up into the soil.



HEAD-GATE AND DROP, GRAND RIVER CANAL.

In this way one has a positive and permanent moisture in the soil.

Advantages of Irrigation.—"Crops thus cultivated," to quote Prof. Eugene W. Hilgard, "are not subject to the vicissitudes of rainfall. The farmer fears no droughts, his labors are seldom interrupted, and his crops are rarely injured by storms. Again, the water comes down from the mountains and plateaus freighted with fertilizing materials derived from the decaying vegetation and soils of the upper regions which are spread over the cultivated lands. It is probable that the benefits derived from this source alone will be full compensation for the cost of the process. When the flow of water over the land is too great or too rapid, the fertilizing elements borne in the waters are carried past the fields and a washing is produced which deprives the lands irrigated of their most valuable elements and little streams cut the fields with channels injurious in diverse ways. Experience corrects these errors, and the irrigator soon learns to flood his lands gently, evenly, and economically."

Subirrigation is peculiarly adapted to fruit raising and the cultivation of garden vegetables. The remarkable success following this method in Yuba County, Cal., is noteworthy. An orchardist there has declared that one acre of land irrigated in this way would yield returns the net value of which was equivalent to that obtainable from fifty acres of land irrigated on the surface. Sediment in the water distributed to the perforated pipes is fatal to this plan, so that the water must be settled before being used.

Where it is necessary to irrigate hillsides, what is called "hanging up water" is resorted to. A high-line ditch is dug two feet wide, six feet deep, and as long as the land to be irrigated. Below this first ditch and at intervals of ten feet parallel ditches are made. An iron pipe is then run along the end of the ditches with a stop-cock opposite each. The ditches are next covered with slabs laid on cross pieces sunk about a foot in the ground. The slabs are then covered with earth, after which the whole hillside may be plowed over. When the crop requires it, water is turned into the ditches from the pipe at the end and percolates through the ground. If a lower ditch becomes too full it is pumped or tapped. Another method is to plow deep furrows and fill them with straw, then cover the straw by a return plowing. These buried lines of straw serve as channels for the water, which is admitted at the highest level.

In climates having a long growing season, so far as temperature is concerned, the effects of irrigation on actual production are startling. In southern California as well as in western Arizona crops may be started at any season (except two months) in the year, and this holds true for market gardens as far north as San Francisco. In Tulare and Kern counties five cuts of alfalfa have been taken off the same field in a single season and ten tons of its hay made. So with sorghum, Egyptian corn, and pearl millet when cut for forage, of which with irrigation three heavy cuts have been made, an enormous yield, which, of course, could be maintained only on a very strong soil or later by the aid of manure; but irrigation enables the farmer to impart to the penny a nimbleness unheard of in regions dependent upon the seasons alone.

Irrigation enables the farmer to keep his pastures green in autumn or start them early in spring. It enables him to produce heavier crops and to secure a larger growth of fruit trees, shrubbery, etc., in one season than can be obtained by any unaided process of nature. The same stream that beautifies and fertilizes his soil can be led by his door and made to furnish power for his churn, grindstone, saw, fanning mill, etc. Finally, it adds immensely to the general beauty of the country, keeping shrubbery verdant and a multitude of blossoming plants alive and in full leaf or flower throughout the year.

Artesian Wells.—Artesian wells may become an important factor in irrigation by supplying water where otherwise it is unattainable. Though the soil of the plains between the 100th meridian and the Rocky mountains is mainly fertile, the spaces between the rivers are destitute of water during summer and early autumn. Experiments with artesian wells on these plains previous to 1880 failed, except at Pueblo, Col. In 1880 Congress appropriated money for a geological survey and the putting down of test wells. The report of this commission was interesting scientifically, but the practical outcome was discouraging. Nevertheless, continual experiment and searching has borne fruit in that region. In western Kansas several limited spots have been discovered where wells produce sufficient water for a small local irrigation. Robert Hay says, in the August and September "Report of the Kansas Board of Agriculture":

A flow of 100 gallons a minute is almost exactly 800 cubic feet an hour. This is 19,200 cubic feet a day. This would cover 19,200 square feet of land one foot deep, or 230,400 square feet of land one inch deep. An acre of land contains 43,560 square feet, which is contained in 230,400, 5.28 times. That is, a flow of 100 gallons a minute would in one day cover a little over 5½ acres one inch deep. Supposing one third (which is a large estimate) of this water were lost by evaporation, this would suffice to put one inch of water on 35 acres once every ten days (3½ acres a day.) This, for a year, is equal to a rainfall on 35 acres of 36 inches—abundant for any growth of vegetation. It is certain also that except in summer the evaporation would not equal that estimated above. In June, July, and August it might be desirable to give the land half an inch of water every five days, so as not to have long intervals. A well, then, of a hundred gallons a minute, with the rainfall of ten inches per annum (the least given in the fourteen years' records at Dodge City), would be ample, if properly used, for the irrigation of 50 acres of land. It is a reasonable estimate to suppose the existing Meade County wells are yielding 600 gallons a minute, so that 300 acres could readily be irrigated. There are other districts in the West that will probably do as well, though the prospector's drill without guidance is as likely to miss them as to find them.

Laramie City, Wyoming, according to Hinton, is the center of an artesian-well district. In Colorado artesian wells are numerous. Denver has long obtained the larger part of its drinking water from them; and it appears from the water commissioner's report from that district, for 1888, that the city and its vicinity possessed 81 wells, the deepest of which was 1,069 feet. New Mexico and Arizona also possess artesian wells. In Tulare County, Cal., there are nearly or quite 100 artesian wells, and in Fresno and Kern counties nearly as many more. They cost about \$1,200 each, and go to a depth, in some instances, of 350 feet. In the Kern County "artesian belt," farms are deemed very desirable. They are generally small. The water is raised by windmills from such wells as do not overflow, and the irrigator is able to use the water at will; and as the wells are generally in the frostless or citrus belt, they are fast becoming an important agent. In San Bernardino and Los Angeles the same source of supply is being used extensively.

Reservoirs.—The construction of reservoirs to save water in the seasons of rainfall or snow melting, until it shall be needed in the season of drought, early engaged the attention of agriculturists. The tanks or irrigation reservoirs built by the ancients in southern Asia are the admiration of engineers, and are still the mainstay of local husbandry. In the United States works of that kind are constructed, or under way, in California, Colorado, New Mexico, and Arizona.

The reservoirs of California are on an extensive scale. Fortunately, some of the tracts most desirable for cultivation lie in close proximity to catchment reservoirs, which in years past have been constructed to serve the hydraulic or placer gold fields. The inability of those corporations to dispose of the *débris*, so destructive to agricultural lands below if poured into the Sacramento and its confluent, has compelled the disposal of their storage waters for irrigation on a much more extensive scale than formerly prevailed. One of the greatest reservoirs lately constructed is that five miles above Merced, where an area of about 800 acres was turned

into a reservoir by the erection of a dam 4,000 feet long. Five years were consumed in the construction of this work, from 250 to 1,000 men and from 200 to 500 horses being constantly employed. The reservoir is supplied with water from Merced river by a canal twenty-seven miles long, which is 100 feet wide at the top, 70 feet at the bottom, and 10 feet deep. Several long tunnels are on the route of the canal, some of them for great distances through rock. These are so large that a four-horse team has been driven through them. When on Feb. 1, 1888, it was "ready for business," the reservoir had cost \$1,500,000. It has an average depth of thirty feet of water, holding about 5,500,000 gallons. This can hardly be called a storage reservoir, since it is more to facilitate distribution. It is not expected to hold enough water to last for any great length of time without addition. The canal carries a flow sufficient in itself, without the distributing reservoir, to irrigate thousands of acres.

In Colorado reservoirs have been built upon the head waters of tributaries of the Platte which are supposed able to hold in the aggregate more than 500,000,000 cubic feet of water. In the southern and western part of the State others have been built. That an enormous quantity of water was wasted in the spring floods before it was needed by farms, and that a very much wider area could be cultivated than now, should the spring surplus, or a part of it, be saved so as to be available when needed, were self-evident propositions. The director of the United States Geological Survey, Major John W. Powell, had long perceived this, and studied the matter scientifically. He believed it was necessary that the Government should undertake the construction of storage reservoirs in the highlands overlooking irrigable tracts, and do so upon a scale large, scientific, and comprehensive enough to be effective for all time. In 1887 Congress authorized an expenditure of \$100,000 "for the purpose of investigating the extent to which the arid region of the United States can be redeemed by irrigation, and for the selection of sites for reservoirs and other hydraulic works necessary for the storage and utilization of water for irrigation, and the prevention of floods and overflows, and to make the necessary maps," the work to be performed by the Geological Survey. It was further enacted that—

All the lands which may hereafter be designated or selected by such United State surveys for sites for reservoirs, ditches, or canals for irrigation purposes, and all the lands made susceptible of irrigation by such reservoirs, ditches, or canals, are from this time henceforth hereby reserved from sale, as the property of the United States, and shall not be subject, after the passage of this act, to entry, settlement, or occupation until further provided by law; *Provided*, That the President may, at any time in his discretion, by proclamation, open any portion or all of the lands reserved by this provision to settlement under the homestead laws.

The first appropriation was expended in a careful survey of the Jemez valley or basin in New Mexico, under the supervision of Capt. C. E. Dutton, U. S. A., who is still in charge of the work. So well were Congress and the people satisfied with the matter, that a year later another appropriation of \$250,000 was given to

Major Powell, and he was able to undertake a preliminary survey of nearly all the arid region, by placing several engineer and hydrographical parties at work simultaneously.

The general instructions issued by Major Powell detailing the methods to be followed in carrying on the work are full of information. He says:

In each hydrographic basin it is desired to attack these problems: What are the available sources of water supply, and by what means may the water be most fully utilized? A hydrographic basin may mean the watershed of a large stream or a small one—of a great river or of one of its tributaries. But whether it means a trunk stream or a branch of it, it is assumed that there is some form of development and construction of works which may be adjudged to be the best that the engineer can devise. The engineers should take no account of works which are already constructed, neither should their judgment be swayed by any opinion on their part as to what works private enterprise and capital are likely to undertake in the next few years. They should rather address themselves to the question already propounded: What is the best system? the one which will utilize the greatest amount of water and produce the greatest amount of irrigation? His project should be practical, involving no extravagance of engineering, nor transcending the possibilities of attainment, and maintenance after attainment. The plans should have also a certain unity, and should contemplate a single system of works for each irrigation district. If both reservoirs and canals are required, the reservoirs should be, if possible, projected as adjuncts of the canals.

Not enough examination has yet been made to warrant the publication of definite conclusions. The question of reservoirs is not ability to hold back a little water by a large dam, i. e., the stoppage of a high, steep gulch, but to hold back a great deal of water by a small dam, i. e., the stoppage of the narrow outlet of a broad, shallow, and nearly level basin, which would contain a great expanse of water. The configuration of the Western mountains presents steep and narrow gulches rather than broad and nearly inclosed basins. Still, many suitable reservoir sites of this kind have been discovered and carefully surveyed in all the region affected. A dam must not cost more than the water it holds is worth. Into the calculation, moreover, must be taken, besides the cost of the structure, the interest on the money, the maintenance, the service, repairs, and deterioration (by silting up, etc.). One of the foremost ways in which such reservoirs will be made of service is maintaining the supply of water in the larger rivers during the summer droughts. After the melting mountain snows have been carried down in the June rise there follows a period of depression, which overtakes the farmer who draws his irrigation from these rivers just when he needs the water most. Not all the streams can be so assisted; the Fontaine que Bouille, in Colorado has no basins near its head available for reservoirs. A better example is the Arkansas, yet it is said by engineers that there are only three places where this river can be helped. By stopping the outlet of Twin lakes with a 1,000 foot dam nearly 5,000 acres of water can be saved. In Lake Park, east of Leadville, another great expanse, indicated by the area of beaver dams, can be flooded, and a third at the eastern foot of Tennessee Pass. The ultimate destiny, by direct flow, or through seepage, would be

into the Arkansas, and would greatly sustain that river during the dry season, with corresponding benefits to irrigators all along its lower course. It is probable that an effective dam might be thrown right across the Arkansas, nearly opposite Leadville.

Irrigable Arable Areas.—Taking up the States and Territories within the arid region the irrigable arable area within each will now be outlined so far as possible, and a brief statement given of the results so far achieved in the way of irrigation.

Northern Plains.—Along the borders of North Dakota and Montana, northeastern Wyoming, and the northwestern part of South Dakota, the grazing of cattle is still the principal land industry, and not much more than a beginning has been made in plantations; but there are large areas along the Yellowstone, Missouri, and Milk rivers, and their tributaries where irrigation will be practicable and of large account. A respectable beginning has already been made, particularly in the tributaries of the Yellowstone.

Wyoming.—The authority for the statements that follow is a communication (November, 1889) from the Territorial Engineer, by whose office all irrigation matters are controlled. "It is impossible," he writes, "to give exactly the number of acres in Wyoming that could be cultivated if supplied with water. It would include more than half the Territory, or fully 35,000,000 acres. The whole plains region is exceedingly fertile, and only lacks the application of moisture to produce bountiful returns. The construction of storage reservoirs alone might reclaim 10,000,000 acres. The number of acres now under ditch is officially recorded, and approximates 2,500,000 acres. Not all of this is cultivated, however, since a lack of transportation facilities in some portions of the Territory, a surplus of products, and consequent low prices, have led to the curtailing of agricultural occupations. There are now recorded in the Territorial Engineer's office 2,750 canals in all parts of the Territory. These vary from small individual ditches to canals 40 feet in width and 40 to 50 miles long. The principal agricultural districts are in the northern portion of the Territory, but there are some excellent examples of canal building in southern Wyoming. The dimensions and cost of some of the canals diverting water from Laramie river illustrate this:

NAME.	Length in miles.	Capacity in cubic feet per second.	Cost.	Acres watered
Wyoming development canal	100.0	633.0	\$485,000	58,000
Bouton Canal	7.5	173.0	50,000	8,000
Brown ditch	4.0	45.0	.....	10,000
Pioneer Canal	35.0	306.7	50,000	50,000

"There are thirty-seven other ditches and canals on Laramie river, some of which equal in size and cost those given. Owing to the greater facilities for diverting water, the flow of the smaller streams has been first utilized, leaving the principal streams, like the Grand, Green, and Big Horn rivers, practically untouched. What is needed for the diversion of their waters is the investment of corporate capital to construct canals to rent water. The ownership of all public waters within its borders is vested in the Territory, and the supervision of their distribution is under the control of the Territorial Engineer and the district water commissioners. The Territory is divided into nine water districts, and provision is made for the recording of all claims to water, and the size, capacity, acres watered, and date of construction of each of the ditches on which each of these claims is based." The annual report to Congress, for 1889, by the Governor of Wyoming, contains a long account and discussion of the whole subject of irrigation in that Territory, present and future. The adjacent western end of Nebraska has few settlements west of the 100th meridian, and these depend on the rainfall. The Niobrara, North Platte, Republican, and other rivers will supply water.

Kansas.—In northeastern Kansas, settlement is very new, and irrigation is practicable only in a primitive way. The Republican river and its tributaries carry a large amount of water available for future use. The same is true of the central-western part of the State, watered by the Smoky, and its tributaries. These, like the head waters of the Republican, are uncertain streams, and settlers have been chary of the expense of digging ditches when the supply for them was likely to fail at the most critical time. The success of artesian wells in this district is of prime importance.

In southwestern Kansas the Arkansas river affords a constant source of water, so that irrigation does not encounter the vicissitudes it meets with farther north. West of Dodge City, the Arkansas valley was devoted wholly to the pasturage of cattle until 1880, and it had no towns or even villages. In that year a small ditch was dug. The results encouraged large enterprises in the same direction, which were begun in 1883-'84, and went into operation in 1885. In Finney County, the last but one in the southwestern corner of the State, the town of Garden City sprang up with amazing rapidity, and the whole neighborhood was speedily settled during the "booming" times of 1886-'87. The town soon had a population of 8,000, which it sustains, and the area sowed in the valley west of Dodge City in 1888 was reported at about 300,000 acres. The "Report for August and September of the Kansas State Board of Agriculture" contains the following tabulation of ditches in Finney County:

When begun.	NAME OF COMPANY.	Acres irrigable.	Miles of ditch.	Cost of ditch.	Price of water per inch.
1881...	Kansas Irrigating and Manufacturing Company	30,000	.....	\$20,000	\$1 20
1879....	Garden City Irrigating and Water Power Company	12,000	37	10,000	1 20
1881....	Great Eastern Irrigation and Water Power Manufacturing Co	34,000	.....	80,000	1 20
1881....	Western Irrigation Company*	30,000	30+	35,000	1 25
1887....	Amazon Irrigating Company.....	270,000	148	100,000	1 50

These companies operate on the north side of Arkansas river, except the one marked (*), which is on the south side. The mileage given does not include the smaller laterals. The number of acres actually irrigated varies with dryness of the year; 1889 required only a small amount of irrigation in this region.

In the counties east of Finney, Gray and Ford have several ditch companies, and some private ditches. The largest is the Kansas Water Works and Irrigating Company, which has a ditch 96 miles long, with laterals to the extent of 250 miles, inclosing an irrigable area of nearly half a million acres, but only 10,000 have been actually irrigated. In the counties west of Garden City—Kearney and Hamilton—the work of irrigation has made considerable progress. A large ditch takes water from the river above Lakin and incloses that city and the land below it for miles, while a ditch on the south side of the river also incloses a considerable area. Recently a ditch has been opened above Syrausc which can give irrigation to more than 20,000 acres. Its waters are returned to the river within a short distance of the town. There is no ditch further up, though the citizens of Coolidge are desirous of it. Owing to a law of Colorado, which prevents water taken from the river being allowed to flow out of the State, they can not have river water to serve the neighborhood. No other large stream of western Kansas has been put to this use yet except that a beginning has been made in Clark County, where a canal several miles in length distributes the waters of the Cimarron, near the south line of the State. In Meade County the whole of the water of Spring creek can be made available for irrigation, so that 3,000 acres could be served as above, and smaller areas more plentifully. The Saline, the Sappa, and the Prairie-Dog may thus be utilized, as well as the Republican and the Smoky.

Texas.—In Texas the whole valley of the Rio Pecos, the upper portion of that of the Canadian, and the lower drainage basin of the Rio Grande are susceptible of irrigation; but the extent of the works which have been begun very recently in the "Pan-handle" is unmeasured.

New Mexico.—For several reasons this Territory has not progressed in farming commensurate with its apparent capabilities. A local engineer—Mr. Hartman—is quoted as reporting that only 2½ per cent. of its area is irrigable and fertile. Hinton says this figure should be doubled, and the last pamphlet issued by the Bureau of Immigration at Santa Fé exaggerates it to 50 per cent! The three principal valleys in which irrigation has proceeded are those of the Rio Grande, the Pecos, and the Rio San Juan. The Rio Grande valley passes through the middle of the Territory from north to south, and since its earliest occupation by the Spanish invaders has been the scene of agriculture watered by the little individual ditches called *acequias*, as the Indians had done before them. The Indian towns north of Isleta, and the valley expansions surrounding Isleta, Bernalillo, Socorro, San Marcial, and Las Cruces, are the localities most extensively cultivated; but small hamlets and single ranches drawing water from the river by primitive methods, are scattered all along its course. Within the last ten years some larger

canals and more extensive operations have been undertaken, but statistics of their extent are not at hand. It seems, however, that arrangements have already been made to use more water than the river supplies. During the summer of 1889, owing to the subtractions in San Luis Park, Colorado, and in the northern part of New Mexico, and to the unusually small rainfall of that season (only 2.75 inches at Santa Fé) "the Rio Grande has been dry for nearly all the distance from Isleta to El Paso, and for several weeks the *acequias* through that entire district were useless. Yet Governor Prince adds that new enterprises are under way and are feasible, since, taking the whole year together, the amount of water is ample, provided it be saved from the months of rainfall to those that are rainless by some system of storage. A survey has shown many suitable sites for reservoirs. West of the Rio Grande little more than very limited and rude attempts at irrigation have been made, as yet, in mountain valleys opening south and west; and, more northerly, in the valleys of the two Puereos and around Zuñi and Fort Wingate. The San Juan and its tributaries flow across the northwestern border of the Territory through sunken, cliff-walled valleys, prehistorically occupied by an agricultural people. These cañon-valleys have a fine climate, and in some places considerable areas of irrigable lands, which are now attracting settlers and being irrigated in a local way. The most extensive improvements of this kind, however, are now proceeding in the eastern part of the Territory, where a company is spending \$1,000,000 in making two immense canals, to be fed from the Pecos river. Storage reservoirs, the largest 7½ miles long by 2½ wide, are also under construction there, and the whole is expected to water from 200,000 to 300,000 acres of land. No less than 32 corporations for irrigation were formed in New Mexico between Sept. 1, 1888, and Sept. 1, 1889, principally in the eastern counties. The irrigation laws of New Mexico are substantially the same as when the Territory was a part of Mexico, but the people see the necessity of remodeling them.

Arizona.—In this large Territory several river valleys furnish fertile land and plenty of water. Foremost of these are the Gila, Salt river, the Little Colorado, and the Great Rio Colorado (near its mouth). At many points, farming has been carried on by Indians and Mexicans by the most primitive methods of water distribution for the past three hundred years. More recently, Mormon settlers have established villages along the northern boundary; and all over the Territory, wherever American settlements have grown up around silver mines, irrigation has been pursued. "The new canal properties of the last six years, mostly in the Gila valley, have exceeded \$2,500,000 in cost, and have placed under water at least 200,000 acres more." The most important of these are in the Salt River valley, Maricopa County, in the vicinity of Phenix, the new capital of the Territory. In this valley the canals that supplied a prehistoric race are still visible. Twenty years ago farming began in a small way, but not until 1883 was any large enterprise undertaken. Now there are in Maricopa County alone—but this county has an area larger than that of the whole State of Massachusetts—

311 miles of canals, capable of watering 250,000 acres; a railway connects it with the commercial world, and large towns are growing up. One of these canals is 41 miles long, and cost about \$700,000; another, 31 miles long; a third, 27 miles; a fourth, 22 miles; and several others exceed 10 miles. The only other large canal is the Mohawk, near Yuma, which is 35 miles long, and has an estimated capacity of 11,000 inches, and will cost about \$150,000. The land now actually under cultivation by irrigation in Arizona is said by the Commissioner of Immigration to be about 275,000 acres; from 6,000,000 to 10,000,000 acres are considered capable of irrigation provided sufficient water can be obtained; and 1,500,000 acres will soon become available by the completion of canals carrying water already appropriated. Engineers have discovered unusually good opportunities for building storage res-

be credited to the enterprise of a single generation; all this having been made since the gold seekers first settled in what is now a part of Colorado in 1859.

The State has been divided by law into "water divisions," and these into smaller "water districts"; the former are in charge of superintendents of irrigation, appointed by the Governor, and the latter are each under control of a local board of water commissioners appointed by the superintendent of its division. The five divisions are named for the rivers from whose main stream and tributaries the lands in each are watered, thus: 1. South Platte division; 2. Arkansas division; 3. Rio Grande division; 4. San Juan division; 5. Grand River division. Records of each division are kept by the superintendent under the following forms of tabulation:

No. of division in which situated.	No. of district in which situated.	Name of ditch, canal, or reservoir.	Stream from which water is taken.	Date of appropriation.	Cubic feet of water per second decreed to each priority.	Summation of decrees to each ditch, canal, or reservoir.	Cubic feet of water previously appropriated in district.	Order of priority in district.	Cubic feet of water previously appropriated in division.	Order of priority in division.	Embodied in decree recorded on page —.	Rated as entered on page —.
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ervoirs, and that by their aid 3,000,000 acres in the Gila valley may be improved. The irrigation laws of Arizona are modeled on those prevailing in California before revision, with some modifications, and need improvement. Governor Wolfley's report for 1889 discusses this matter at length, and gives much general information.

Colorado.—This State is naturally divided into five great drainage basins—two easterly, toward the Missouri, by way of the Platte and the Arkansas; two southerly into the Rio Grande and Rio San Juan; and two westerly into the Grand and White rivers. On the western slope of the watershed range of the Rockies there is probably water enough to supply all the land otherwise available, perhaps 500,000 acres. In San Luis Park (Rio Grand valley) there is perhaps an equal amount. In the eastern half of the State, on the contrary, there are 50,000 square miles of grassy plains, but only so much water as is carried by the Arkansas and Platte rivers. The State Engineer says in his report:

It is safe to say that all the water available, even if the flood waters were all impounded for use in irrigation, is sufficient to cultivate but a fraction of this area, and that the great bulk of the cultivation will be concentrated on the most available land nearest the foot-hills, with tongues extending eastward along the streams as far as the water supply will extend. Broadly stated, the amount of irrigable lands in Colorado is limited by the supply of water, and this supply can not be definitely determined until a complete system of gauging of all streams has been completed, and estimates made of the extent and storage capacity of possible reservoirs for impounding the surplus flood and winter waters of all the streams available for irrigation.

Irrigation in Colorado is presided over by the office of the State Engineer, who reports biennially, with much detail, upon all matters relating to this subject. His latest report is dated Nov. 30, 1888, and in briefest summary he informs us that "water in 4,000 miles of ditches, holding sway over 2,000,000 acres of lands," is to

Superintendents must also enter in a book a tabulated statement relative to the ditches and reservoirs of the appropriate district.

These tabulations and other required statistics as to measurement of streams, etc., together with plats and maps of approved form, must be regularly filed with the State Engineer, by whom they are reported to the public once in two years. Hereafter it will also be the duty of the district commissioner to ascertain and report the facts of his district as to the work done by the water.

But only division No. 1 is fully reported in accordance with these tables in the Engineer's report for 1887-'88, which is the latest accessible information. From this report are culled the following facts:

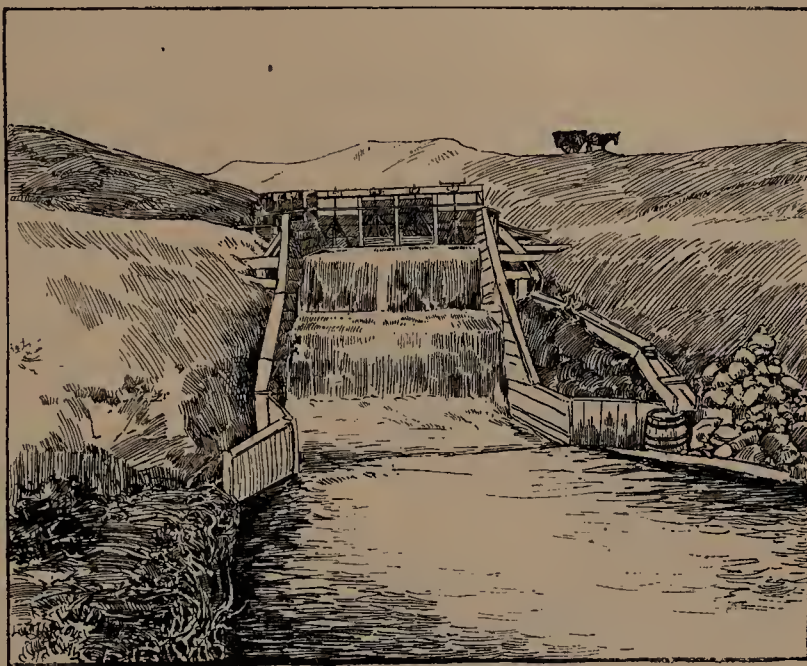
Water Division No. 1.—South Platte: This includes ten districts, embracing the whole region east of the main range of the Rockies and north of the height of land between the Platte and the Arkansas. Here is the oldest farming region of the State. It had in 1888 about 1,670 miles of ditches, watering 70,000 acres of alfalfa, 39,000 acres of seeded grasses, 60,000 acres of natural grasses, and 250,000 acres of other crops; total, about 530,000 acres. In this district are the oldest and most extensive works in the State, except the primitive *acequias* of the Mexicans and Indians along the southern border. In the Cache la Poudre valley, in 1871, the first union ditch in Colorado, large enough to be called a Canal, was opened. This was the original Greeley canal. It was 27 miles long, with innumerable laterals, was 30 feet wide by 4 feet deep, and delivered 583 cubic feet of water in a second. It is now owned by the farmers themselves, and has proved one of the best constructed in the State. Only ten years later (1881), W. E. Fabor reported "nearly a score of large canals" there, "varying in length from 10 to 30 miles," and "covering over 150,000 acres," but only about 30,000 acres were then under the plow. Among the more recent and prominent canals are the

great system of the Platte Land and Improvement Company in Arapahoe County, adequate to the service of 150,000 acres, and costing \$500,000; the North Poudre Canal, in Larimer County, a part of which is a system of reservoirs and a long tunnel through the rock; and the new canals in the Platte valley well out on the plains in the vicinity of Fort Morgan.

In respect to the other water divisions of Colorado, few such statistics are available. In the southeastern corner of the State certain favorable valleys have always been the scene of a loose farming by Mexicans and some Americans, under the simplest and most wasteful network of *acequias*; but within a few years more systematic measures have been undertaken near Pueblo and in Huerfano Park, where large canals have already been built and others are under way. In Bent County, and somewhat elsewhere, the conflict between the ranging cattle interest and those who wish to farm the valley lands has retarded irrigation works. The report of the State Engineer for 1888 shows that in Pueblo County (taking water from the Arkansas and its tributaries) there were 185 miles of canals and ditches (averaging about 3 miles in length—the longest 10 miles), which in 1887 watered 14,892 acres of alfalfa, 684 acres of seeded grasses, 5,447 acres of natural grasses, and 4,955 acres of other crops; total, 12,284 acres. From Huerfano County the same report was: Miles of ditches, 350; acres of alfalfa, 1,359; of seeded grasses, 904; of natural grasses, 3,943; of other crops, 4,870; total, 11,076 acres, about two fifths of the estimated ability of the canals. It is said that down the valley of the Cimmaron, east of Trinidad, 100,000 acres might be brought under the plow, as much of it has been already, but there is a question as to sufficiency of water, which must be used far more economically than at present.

In the great San Luis Park, which constitutes the third water division of the State, many little streams make farming possible in the northern end of the valley (where wheat farms are measured by the square mile), and along both sides, among the foot-hills of the Sangre de Cristo and of the La Garita mountains; while along the course of the great Rio Grande river 200,000 acres are said to be available, part of which has long been occupied by Mexican and some scattered American farmers. It is only recently that anything on a general scale has been done here, but now two great canals are in operation in the northern part of the park, which are calculated to water about 300,000 acres. Forty-four ditches took water from the Rio Grande in 1888, which was a quarter more than the

river was able to supply during summer, that being a dry season. One of these ditches was 70 miles long, another 60, and a third 28, while several others exceeded 10 miles in length. The totals are: Miles of ditches, 328; area irrigable, 396,360 acres; in seeded grasses, 890 acres; natural grasses, 1,350 acres; other crops, 72,650 acres. Two other districts (Nos. 21 and 22) in San Luis Park were similarly reported; the



GRAND RIVER CANAL, COLORADO.

former include irrigation from La Jara and Alamoza creeks, the latter from Concejos creek and its tributaries. Together they were able to furnish water to 100,000 acres; and actually watered, of alfalfa, 1,047 acres; seeded grasses, 990 acres; natural grasses, 55,553 acres; other crops, 20,298 acres; total, 77,888.

In regard to other districts in this division, the information of "claimed capacity" given leads one to believe that the work done is at least as large as that by the three districts reported in detail above. It will therefore be fair to say that 175,000 acres are under irrigation and cultivated in the whole extent of San Luis Park. In respect to the irrigation works and products west of the Rocky mountain watershed, few exact figures are at hand.

The local superintendent of Division No. 4, including the valleys along the southwestern border of the State tributary to the Rio San Juan, reports, in substance as follows, for 1888: In Archuleta County, largely taken up by the Ute Indian reservation, are "a few very fine irrigating ditches," not yet adjudicated upon by the courts; in the mountainous San Juan County, none; in La Plata County, on the Rios Los Pinos and Florida, are 35,000 acres of fine farming lands, "but no action has been taken to have their rights passed upon by the courts"; on the Animas the largest stream in the county, 8,000 acres, a part of which near Durango, is in a high state of cultivation; the La Plata river gives little land,

but along the Mancos about 15,000 acres have been irrigated and settled upon, which taxes the stream to its full capacity. The whole of western Colorado north of the San Juan mountains falls in Division No. 5, and the principal operations are in the valleys of the Dolores; the Gunnison and its principal tributaries, the North Fork, and the Uncompahgre; and in the valley of the Grand, especially near and below its junction with the Gunnison. Says W. H. May ("Report of the State Engineer" for 1888):

While the Dolores river and its tributaries afford a large supply of water, the area of tillable land on that stream is confined to a narrow strip of bottom land. On the Dolores the bluffs are high, and the area of land draining into that stream on the south and west thereof is very small. Two large canals are being constructed to carry water from the Dolores river to irrigate lands on the southern slope, all of which is in the drainage basin of the San Juan. One of these canals, the property of the Montezuma Water Supply Company, has a tunnel 5,400 feet long, 7 by 9 feet in section, and with a grade of 1 in 100, which carries 750 cubic feet of water a second. The other, the Dolores Land and Canal Company's ditch No. 2, has a width of 25 feet on the bottom, and a carrying capacity of 600 cubic feet of water a second. The amount of land that can be irrigated from these canals is estimated to be from 70,000 to 100,000 acres. . . . On these canals has been expended nearly \$500,000. They will be in condition to furnish a large supply of water for the season of 1889.

A part of these works is a reservoir with 260,000,000 cubic feet of capacity. On the Roaring Fork are several ditches, one of which, with a discharge of 60 cubic feet a second, supplies reservoirs holding 12,150,000 gallons. The Uncompahgre valley is watered by several large canals and a reservoir holding about 5,500,000 gallons. In Mesa County, irrigated from the Grand and Gunnison rivers, and well populated, there are a great number of expensive works, of which those in the neighborhood of Grand Junction are the most important. For all this region there seems to be an abundance of water. The Colorado and Utah High-line canal here ought to suffice for 150,000 acres itself. In North Park, and in the remote northwestern corner of the State, rapid progress is making toward agriculture by irrigation, especially near Meeker.

Utah.—The area of Utah is nearly 55,000,000 acres, of which only about 5 per cent. is agricultural land which is at the same time irrigable, owing mainly to the scarcity of the water supply. Col. Hinton calls it "in many respects the model community" for this kind of farming, and reminds us that as long ago as 1875 there were in twenty counties 2,095 miles of main canals and 4,888 miles of laterals or distributors, representing an investment of more than \$2,500,000. This water was applied that year to an area of about 196,500 acres, mainly in Millard, Utah, Iron, Salt Lake, Weber, Juab, and Cache counties. Ten years later (1884) in the four most prosperous counties of the Territory there were main canals as follows: Weber County, 165 miles, which cost \$300,000; Utah County, 150 miles, \$250,000; Cache County, 175 miles, \$550,000; Salt Lake County, 190 miles, \$1,250,000; Total, 680 miles, \$2,350,000. The increase and cost in main canals has been 289 miles and \$1,080,776. The increase in laterals, or distributors, is estimated in miles at 2,132, and in cost at \$216,596. The

cultivated area in the four counties in 1875 was 102,000 acres; it may be estimated in 1884 at 175,000 acres. It must be remembered that the greater part of this apparently large exhibit consists of mere *acequias*—primitive surface trenches, very wasteful and irregular; and the total products of Utah lands (amounting now to about \$8,000,000 a year) are by no means commensurate with what ought to come from so extensive a series of ditches. The latest estimates (Salt Lake Chamber of Commerce, 1889) give about 500,000 acres as "cultivated" in Utah.

Major John W. Powell and the United States Geological Survey have given close study to Utah, in order to ascertain the extent of its capabilities for agricultural settlement. "The statement of the facts relating to the irrigable lands of Utah," it is remarked in Powell's early report, "will serve to give a clearer conception of the extent and condition of the irrigable lands throughout the arid region. Such as can be redeemed are scattered along the water courses, and are in general the lowest lands of the several districts to which they belong. In some of the States and Territories the percentage of irrigable land is less than in Utah; in others, greater; and it is probable that the percentage in the entire region is somewhat greater." He takes it up by sections, as follows: Uintah-White valley, including a part of Green river, in the north-eastern part of the Territory, 280,320 acres; irrigable patches among the cañons and plateaus in the southeastern part, especially along the Grand, Green, San Rafael, and Price rivers, 213,440 acres; the narrow valleys and mountain nooks draining into Sevier lake, about 100,000 acres; and lastly the Salt Lake basin from Lake Utah in the south to the sources of the Bear and Weber rivers in the north. "This region includes an eighth part of the Territory, and more than half the agricultural land," or, say, 1,000,000 acres, since a system of reservoirs will enlarge the area at present able to be watered by the streams taxed to their utmost capacity. This gives to Utah a total of only about 1,500,000 acres. This estimate was made many years ago, and the more enterprising of the Utah people feel confident that it is too small, and hope by more careful methods, by reservoirs, wells, and large canals, to add a million acres to the amount of land ultimately available, the restriction arising from paucity of water not infertility of soil.

The first of the really large and scientific irrigation works in which Utah has been interested is the Bear river or "Bothwell" Canal. This river runs from Bear lake, in southeastern Idaho, into Great Salt lake; and the former lake furnishes a reservoir 150 miles square. The company doing this work is building a dam 75 feet high and 600 feet long, retaining the "spring rise" in the lake and guiding it into a canal about 22 feet wide and 4 feet deep. To carry this aqueduct high along the wall of the short cañon by which Bear river passes from Cache valley in the Salt Lake valley, and thus let it out, near Plymouth, upon the plain northeast of Salt lake, necessitated the moving of 220,000 cubic yards of solid rock, 19,000 yards of loose rock, 1,528,000 yards of earth, and digging 1,200 feet of tunnel. This canal will irrigate 200,000 acres, extending nearly to Ogden, Utah, and will cost about \$2,000,000.

Nevada.—In this State, which is the most arid and desert-like of all the Western subdivisions, irrigation has proved successful in the Carson, Humboldt, and some other valleys. At Lovelocks, near the northern margin, 10,000 acres in one tract are thus utilized. It is asserted by the engineers of the Government that there are sites for storage reservoirs and water to fill them along the eastern base of the Sierra Nevada, sufficient to provide for the wants of 100,000 farmers.

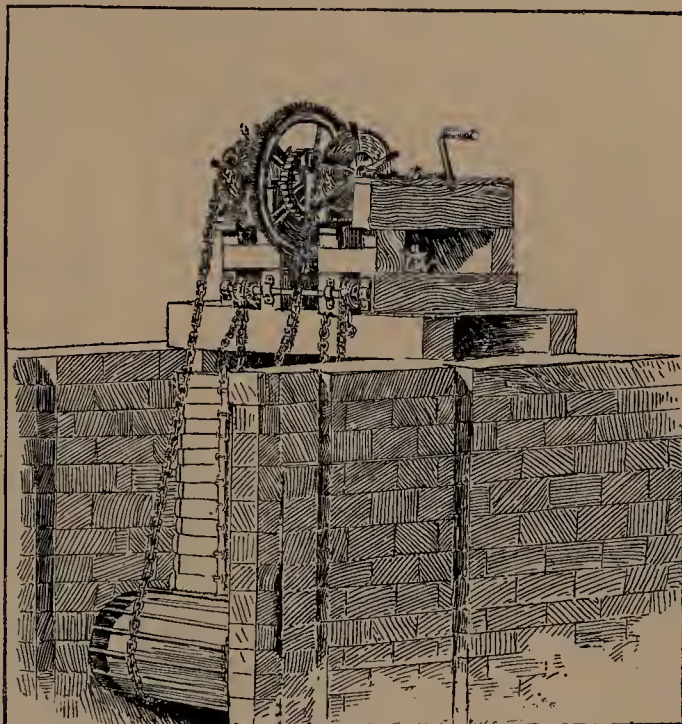
Idaho.—Here are 13,200 square miles of valley lands at less than 3,000 feet elevation. This is a total of about 15,000,000 arable acres, 8,448,000 in valleys. Of this, the Bois  land district contains 3,500,000 acres; the Hailey district, 1,000,000; and the Blackfoot district 4,500,000, all of which are susceptible to and require irrigation. The remainder lies in the northern part of the Territory and need not be irrigated. Beautiful little vales and cosy parks hidden among the hills are innumerable, while sheep ranches, cattle ranches, dairy farms, poultry ranches, and apiaries could be established in a thousand localities. Just how much land may be reached by irrigation with the present amount of water most economically used, it will be impossible to say until the present detailed surveys are completed. Engineer A. D. Foote, who is devoting his whole attention to this matter, affirms that an immense quantity of water may be stored, and that finally Idaho will be able to irrigate 6,000,000 acres at less than \$5 per acre.

Montana.—The irrigation areas along the Yellowstone and Missouri, in Montana, have already been considered. At Billings the number of acres covered in 1886 was 60,000, and the works had cost \$120,000. One of the main canals was then 40 miles in length, 30 feet broad, and 4 feet deep. Between the Judith and the Rocky mountains (the headwaters and valley of the Missouri above its Great Falls) lies an extensive region, cultivable by irrigation in large patches. The vicinity of Sun river has long been occupied; also the lands lying near to and northeast of Helena. More lately a great canal has been opened in the Gallatin.

Oregon.—Malheur County, in the southeast corner, includes nearly all the lands needing irrigation in this State. The watercourses of Malheur County are numerous, all leading from the Blue mountains northeastward into Snake river, which just touches that corner of the county and forms northward the dividing line between Oregon and Idaho. The Malheur and Owyhee are the principal of these tributaries, draining large valleys, the bottom lands of which are fertile. The valley of the Malheur is 30 miles long by 4 miles wide, and is well settled, the farms being irrigated by many small canals and ditches. The Owyhee valley is chiefly devoted to stock ranging, but is said to contain a large amount of land subject to irrigation. About

50,000 acres of arable land extends along the Oregon side of the Snake, below the mouth of the Owyhee, and a company has under construction a fifty-mile canal, taking water from the Owyhee to cover this body of land; it will carry 40,000 inches of water, and will cost \$50,000. Baker County is said by the United States surveyor to contain 320,000 acres of arable and irrigable lands, of which about 50,000 are now under cultivation. There seems to be an abundance of water for the remainder.

California.—Irrigation is necessary to agricultural success in this State everywhere south of the Sacramento river, and in its northeastern corner. Between the Sierra Nevada and the Coast Range lies the immense plain of the Sac-



WATER-GATE AND DAM, BOIS  RIVER IRRIGATION CANAL.

ramento and San Joaquin rivers, called the San Joaquin valley. This is the principal area of irrigation. Other regions where now cultivation of land is carried on by this method, or where the soil is capable of it, lie along the "desert" valleys of the Mojave and Colorado rivers, in the southern coast counties, and in the extreme northeastern corner, next to Idaho and Nevada. In all, 13,000,000 acres are said to be available to irrigation.

Since 1880 California has added half a million to her population. At least \$30,000,000 has been invested in that State within four years (1883-'87) in irrigation-land enterprises. The value of land "under water" has already increased from ten to fifty fold. Such works have become a permanent investment. The taxable valuation has increased at the rate of \$100,000,000 a year during the past four years. One hundred new colonies, embracing a large acreage, have been added to its fruit-growing area. The cultivated irrigable land has more than doubled since 1883.

The San Joaquin valley is a plain nearly at sea-level, some 450 miles long by 30 to 75 wide, which is divided among Fresno, Merced, Stanislaus, and San Joaquin counties, named from south to north; and Kern and Tulare counties are usually classified as "San Joaquin." The valley has an area of nearly 30,000 square miles, over one third of which belongs to the river valley proper. In the Sacramento valley, an essential feature of this great axial trough, there is a marked division as to irrigation needs between the east and west sides of the river. The east side is largely made up of the lower foot-hill region, and embraces an area of 7,687 square miles. Of this, about 70 per cent. is assumed to be irrigable from the current supply of the running streams. The west side area is estimated at 2,689 square miles. The valley lands proper are estimated at 5,046,400 acres, while the foot-hill and mountain lands cover nearly 9,000,000 acres. Fresno County, of irrigable lands, has 2,000,000 acres; Tulare, the most important wheat-growing division, has 1,113,000 acres of valley land; Kern County, in which irrigation projects on a large scale have been carried forward, has a valley area of 1,657,600 acres. When an adequate storage system, in the midslopes of the Sierras and their loftier foot-hills, shall supplement the present river and drainage supply, it is quite possible that the foot-hills and *mesas* may add from 1,000,000 to 2,000,000 acres more to the irrigable area. The extent of the current water supply, of which adequate data are not fully accessible, may be estimated from a few facts:

The drainage area of King's river, an all-important portion of Tulare and Kern counties, is 1,855 square miles. From January to July its average volume is 8,715 cubic feet a second. At the rate of 110 acres per cubic foot per second, the irrigable duty of this volume of water will not be less than 1,000,000 acres. Estimating the present area of irrigable lands in the San Joaquin valley proper at about 4,000,000 acres, we now have "under water" about 650,000 acres. Possibly one tenth of this area receives water from artesian wells. The number of irrigating canals and ditches in Tulare County in 1887 was estimated at 250. In Fresno County there are not fewer than 100, and in Kern County about the same. The total length of these 450 irrigation-canal systems can be roughly estimated at 1,500 miles, inclusive of main and lateral ditches. In 1880 the total irrigated area was stated at 188,000 acres. . . . The total cost of the estimated 450 canals, large and small, within the San Joaquin area, may be set down at about \$5,000,000. The Kern County canals have cost at least \$1,250,000. The Fresno canals have cost nearly \$1,000,000. They were commenced about fourteen years since. Their ditches irrigate at least 500,000 acres, and support at least 100,000 persons. All these ditches draw from King's river. The cost of artesian wells is about \$1,200 each, or a total expenditure so far of \$240,000. The Merced Canal, which now supplies 300,000 acres in Merced and Fresno counties, has already reached \$1,500,000. The cost of the Tulare County works, and of the large number of farm and small community ditches, will cover the remaining million.

Nowhere is the transformation that has resulted from irrigation in this valley more striking than at Riverside; but to realize the significance of the marvelous change one must remember that, less than ten years ago, where now are many thousand acres of shady orange orchards in the highest state of cultivation, there was

only a broad plain of reddish *mesa*, with neither tree nor shrub to cool the dry expanse. Now, orchards and vineyards stretch for miles in every direction.

The southern coast counties afford conspicuous examples of what irrigation can accomplish on the Pacific coast. The State Engineer calculates that almost 500,000 acres of good land can be irrigated south of the Sierra Madre. North of the Sierra Madre is the great Mojave "desert," where another 500,000 acres may sometime be reclaimed. Large portions of the Colorado desert are also redeemable. In Los Angeles and Orange counties there are 1,500 miles of ditches, and the land actually irrigated is about 150,000 acres, a part of which is supplied from artesian wells. Here are good places for reservoirs to be excavated in the *mesas*, some examples of which are already done. In San Bernardino County experience in the Bear valley and elsewhere has shown the value of reservoirs, and there is probably water enough now in sight to irrigate one half of all the land available for such use. In San Diego County one large reservoir and system of canals exists, and others are rapidly coming into service. In many parts of southern California where irrigation is now practiced, crops of grain, vineyards, and orchards had been raised previously without any such assistance. The advantage of adopting irrigation there has led to its application in more northerly parts of the State where it has not hitherto been considered necessary. In Placer County a great improvement in fruit culture has thus been effected. The region of Oroville, Butte County, is another conspicuous example. Lassen County, most of which is at present useless, can be made to yield very largely when water is applied, and it is proposed to draw this by tunnels from Eagle lake; 500,000 acres could be redeemed there, and a similar amount in Nevada, east of this county. Modoc County presents similar opportunities, where an expenditure of \$1,000,000 would bring 1,000,000 acres under the plow. The Owens valley, in Inyo County, is also capable of irrigation, provided reservoirs and canals are built.

Conclusion.—Such is the general information at hand in regard to irrigation in the arid western portion of the United States. Doubtless factors are omitted in some of the statements given above, which are taken into consideration in others, since ignorance of the facts and local pride and expectations have entered into some estimates, while others have been more accurately drawn. A true arrangement of statistics of irrigation must consider the following three points:

1. What area (within a given boundary) is fertile and open to irrigation, provided there may be water enough if it is properly applied?
2. What area is actually under ditch and in cultivation under the present circumstances?
3. What area might be reached by irrigation with the present amount of water, used with the greatest possible economy?

ITALY, a constitutional monarchy in southern Europe. The legislative authority is vested, by the Constitution, in the Parliament, which is composed of the Senate and the Chamber of Deputies. The Senate is composed of princes of the blood royal and an unlimited number of persons who have served in high offices, or have ac-

quired fame in science, literature, or other pursuits, or pay 3,000 lire or francs in taxes annually. They are nominated by the King for life. The deputies are elected by ballot according to the law of *scrutin de liste* adopted in 1882, every citizen having a vote who is of age and can read and write and pays nineteen lire in taxes, or who belongs to the learned professions or has served for two years in the army. The registered voters comprise about one twelfth of the population, and the actual voters in the general election of 1886 were not quite three fifths of the total number registered. Deputies receive no pay nor emoluments except the right of free passage over the railroad and steamboat routes. Salaried Government officials, as well as priests, are ineligible. The legislative period is five years, unless the King dissolves Parliament, in which case he must order new elections within four months. Legislative measures can be introduced by the Government or by members of either House, except votes of money or bills relating to taxation, which must be first acted upon by the Chamber of Deputies. Ministers can take part in the debates of either House, but can not vote unless they are members.

The reigning King is Umberto I, born March 14, 1844, the eldest son of Vittorio Emanuele II, who died in 1878. The heir-apparent is Vittorio Emanuele, Prince of Naples, the only son of the King and his Queen, Margherita, daughter of the late Prince Ferdinando of Savoy.

The Cabinet of Ministers originally constituted on April 4, 1887, is composed of the following members: President of the Council and Minister of the Interior and Minister of Foreign Affairs *ad interim*, Francesco Crispi, who became Prime Minister after the death of Agostino Depretis, on July 29, 1887; Minister of Justice and of Ecclesiastical Affairs, Giuseppe Zanardelli; Minister of Finance, F. Seismit-Dodds; Minister of the Treasury, F. Giolitti; Minister of War, Lieutenant-General Ettore Bertolè Viale; Minister of Marine, Benedetto Brin, who has held the office since March 30, 1884; Minister of Commerce, Industry, and Agriculture, L. Miele, appointed in January, 1889; Minister of Public Instruction, Paolo Boselli, appointed in 1888; Minister of Public Works, G. Finali, successor to Giuseppe Saracco; Minister of Posts and Telegraphs, P. Lacava.

Emigration.—Of the emigrants who left Italy in 1888, 82,941 were destined for European countries, 3,089 for the northern parts of Africa, 34,292 for the United States and Canada, 65,958 for the Argentine Republic, Paraguay, and Uruguay, 98,729 for Brazil and other countries in South America, Mexico, and Central America, and 442 for all other countries.

Finance.—The revenue increased from 1,709,744,995 lire in 1884-'85 to 1,936,724,649 lire in 1887-'88. The expenditures grew at a more rapid rate, and the surplus of 35,335,530 lire in 1884-'85 was followed by smaller balances in the two succeeding years, until the disbursements overtook the receipts, and the accounts of 1887-'88 were closed, with the large deficit of 57,151,120 lire, the total expenditures having risen to 1,993,875,769 lire. According to the budget estimates for 1888-'89, the total receipts were 1,890,685,391 lire and the expenditure 1,927,669,714 lire, leaving

a deficit of 36,984,323 lire. The ordinary disbursements are estimated at the sum of 1,573,557,084 lire and the extraordinary disbursements at 284,349,766 lire.

The perpetual 5-per-cent. *rente* amounted in 1888-'89 to 448,845,909 lire; the three-per-cent. *rente*, 6,408,080 lire; annuity due to the Holy See, 3,225,000; interest on special debts, 2,131,254 lire; interest on railroad and other debts assumed by the Government, 83,916,427 lire; interest on the floating debt, 13,153,635 lire; total interest on the public debt, 571,272,225 lire; to which should be added 921,565 lire paid during the year for amortization.

The final accounts of receipts and expenditures for 1888-'89 show a deficit of 234,333,000 lire. For 1889-'90 the deficit was expected to be 47,000,000 lire. The treasury bonds in circulation amounted at the close of 1889 to 285,000,000 lire. For 1890-'91 the Minister of Finance anticipates an improvement in receipts to the amount of 36,500,000 lire, while the increase in the expenditures is set down as 9,800,000 lire, a calculation that makes the deficit for that year 21,800,000 lire.

The Army.—The effective strength of the Italian army on July 1, 1889, was officially returned as follows:

DESCRIPTION OF TROOPS.	PERMANENT ARMY.		MILITIA.	
	With the colors.	On furlough.	Mobile.	Territorial.
Officers	14,598	10,926	3,342	5,161
Carabinieri	24,287	3,725	371	8,850
Infantry	107,268	202,574	210,383	566,961
Bersaglieri	13,064	29,339	21,630	36,027
Alpine troops	9,562	17,723	25,646	38,657
Military districts	9,784	26,152	.....	866,901
Cavalry	25,563	10,367	433	30,955
Artillery	33,398	60,379	24,868	49,340
Engineers	8,230	15,079	5,922	8,932
Military schools	1,592	.....	.....	.....
Sanitary corps	2,362	7,830	5,102	7,492
Administrative	2,394	3,071	1,203	3,428
Invalid corps	359	.....	.....	.....
Complementary troops .....	.....	201,486	.....	.....
Penal establishments	2,992	.....	.....	.....
Total rank and file	240,845	577,725	295,558	1,617,248
Total officers and men	255,483	588,651	298,900	1,622,404

According to this statement the strength of the army on the war footing is 2,765,373 men of all ranks.

The Navy.—The Italian war navy on Jan. 1, 1889, was composed of 12 armorclad battle ships, armed with 122 guns, having an aggregate displacement of 94,313 tons, with engines developing 81,708 indicated horse-power, and manned by 5,430 sailors; 14 battle ships of the second class, of which 3 were ironclads, having a combined armament of 102 guns, an aggregate displacement of 37,228 tons, engines of 58,967 horse-power, and 3,549 men in their crews; 17 third-class fighting ships, carrying 77 guns, having an aggregate displacement of 15,851 tons, and manned by 1,704 sailors; 16 transports of all classes, with a displacement of 26,080 tons, employing 1,639 men; and 179 other steam vessels for various purposes, with 235 guns and crews numbering 4,464 men, comprising 3 school ships, of 12,424 tons displacement, 42 vessels for local

service, of 17,441 tons displacement, 6 side-wheel gunboats, 7 torpedo avisos, 50 sea-going torpedo boats, 38 first-class torpedo boats, and 21 second-class ones for coast defense, and 12 torpedo launches. There were building or completing 33 vessels, of an aggregate displacement of 92,103 tons and engines planned to develop 168,640 horse-power. These were 5 first-class ironclads averaging 12,000 tons each, 7 second-class vessels without side armor, 10 third-class vessels, 2 vessels for port service, and 14 ocean torpedo boats. One half of the 10 monster ironclads of the Italian navy, some of which cost more than 25,000,000 lire apiece, are now completed, and the others are approaching completion. The largest yet completed are the "Italia" and the "Lepanto," which are 400 feet long and 74 broad, with a draught of more than 30 feet, carrying four 100-ton guns each and a broadside battery of seven 6-inch guns in one and of nine in the other. The fleet in 1889 was officered by 6 vice-admirals, 16 rear-admirals, 147 captains, 219 lieutenants, 122 sub-lieutenants, 30 officers of marines, 55 of marine engineers, 136 engineers, and 465 medical, commissary, and equipment officers. The crews, inclusive of gunners, machinists, and men in the torpedo service, numbered 16,353 men in active service. Including reserves, the *personnel* of the navy was 1,765 officers and 53,950 men.

The swiftest cruiser yet built is the "Piemonte," which was completed for the Italian Government in England in 1889 at the Elswick yard. She is 300 feet long, and has a displacement of 2,500 tons. At her trial the mean speed was 20.4 knots, and under forced draught she ran 22.3 knots. Her protective deck is 3 inches thick on the sloping sides. The armament consists of six of the new Elswick quick-firing guns of 6-inch and six of 4.75-inch caliber, ten 6-pounder and six 1-pounder Hotchkiss guns, four Maxim guns, and three torpedo tubes. Not the largest battle ship afloat can discharge in the same time one half the weight of shot and shell that this little vessel can pour into an adversary. The quick-firing 4.75-inch guns can fire thirteen rounds a minute.

The torpedo flotilla for coast defense is distributed among the harbors of La Spezia, La Madalena, Gaeta, Messina, Taranto, Ancona, and Venice, and the entire coast is divided into seven districts which are guarded from these stations. There are lines of batteries on the Calabrian and Sicilian coasts mounting more than 120 guns of heavy caliber to guard the Strait of Messina. On the Riviera 100 and 110 ton guns are placed on commanding heights to prevent the landing of troops, and to doubly secure the flank of an army encamped about Turin and Alessandria and on the upper Po all the roads leading across the Apennines are fortified, though less strongly than the passes of the Alps. The fortifications on the French frontier are nearly completed. Two forts with heavy guns guard the Aosta vale leading from Mont St. Bernard. Three groups of forts and batteries are necessary to close the routes over Mont Cenis and the railroad. The two roads that lead into the valley of the Po from the pass of Mont Genève are blocked by a succession of casemated forts and redoubts. The Col de Larche is defended

by old and new works, and at the Col de Tenda batteries command the entrance to the tunnel at the summit, and the byroads are blocked by strong fortifications lately erected.

Commerce.—The values, in lire, of the main classes of imports and exports in 1888 are given in the following table:

COMMODITIES.	Imports.	Exports.
Cereals	162,400,000	16,800,000
Beverages	7,500,000	61,200,000
Colonial products	47,000,000	3,100,000
Tobacco	15,700,000	100,000
Seeds, fruits, and roots	16,000,000	65,000,000
Animals and animal products	88,900,000	66,300,000
Total articles of consumption.	337,500,000	212,500,000
Fuel	94,800,000	5,500,000
Minerals and stones	6,900,000	53,800,000
Metals	88,300,000	5,500,000
Hides, leather, and hair	38,600,000	16,100,000
Textile fibers	156,600,000	336,700,000
Timber	32,700,000	9,500,000
Total raw materials	417,400,000	427,100,000
Pottery and glass	10,000,000	7,200,000
Metal wares	8,200,000	800,000
Machinery and vehicles	44,200,000	1,100,000
Leather manufactures	8,100,000	3,800,000
Textile yarns	30,100,000	12,800,000
Tissues, trimmings, and apparel .	106,400,000	29,400,000
Various manufactures	16,300,000	18,600,000
Paper	10,300,000	7,900,000
Wood manufactures	8,100,000	9,300,000
Jewelry and art objects	21,800,000	21,400,000
Total manufactured articles..	253,500,000	112,300,000
Fertilizing and waste materials ..	1,400,000	1,100,000
Drugs, colors, chemicals, salts, etc.	40,400,000	48,600,000
Resinous materials, fats, and oils .	55,000,000	69,500,000
Other articles	59,900,000	15,900,000
Total miscellaneous articles ..	159,700,000	135,100,000
Precious metals	68,500,000	80,400,000
Total	1,241,600,000	967,400,000

Italy suffered in 1889 from a serious financial crisis, which was due in part to the tariff war with France, in part to excessive expansion of the wine-growing industry, and in part to speculative building and real-estate operations, particularly in Rome, and the resulting crash involving many credit institutions. The sudden cutting off of the principal market for the main articles of the Italian export trade and the source from which Italy has heretofore drawn most of her imports caused a decrease in the totals of imports and exports which exaggerated the normal effects of the tariff, because merchants laid in large stocks in anticipation of the failure of the tariff negotiations. Textiles and other French manufactures were subjected to differential duties 50 per cent. higher than the former duties. Smuggling took the place of the regular trade in many of the finer manufactures. The Italian products that were the staple of the export with France, such as wine, oil, and raw silk, were subjected to the French general tariff, and French merchants and manufacturers drew their supplies from Spain, Algeria, and Oriental countries, instead of from Italy. The export of wine in bulk fell off from 3,582,104 hectolitres in 1887 to 1,802,020 hectolitres in 1888, or in value from 107,463,120 lire to 54,060,600 lire. The Italian wines are mixed and fortified by French manufactures, and then to a great extent

re-exported at enhanced prices as the products of French vineyards. Only recently have Italians begun to prepare wines for the export market. The progress of this new industry is shown in the returns of the exports of bottled wines, which were valued at 1,027,000 lire in 1886, 3,671,000 lire in 1887, and 4,718,000 lire in 1888.

The export of olive oil to France declined from 237,000 hectolitres in 1887 to 109,000 hectolitres in 1888. The total export was 17,200,000 lire less in value than in the previous year. The total export of raw silk was greater in quantity in 1888 than in the preceding year, though the value was a little less. Straw plaiting, owing to a change in fashions, shows a decline of more than 50 per cent. in two years, the value of the export in 1888 being 8,400,000 lire. The export of lemons and oranges was less than in 1887 by 11,600,000 lire, but still greater by nearly 5,000,000 lire than in 1886. The chief market for these fruits is in the United States. Nuts show a decline of nearly 4,000,000 lire; live animals and poultry one of 5,000,000 lire. The export of unwrought coral rose 1,400,000 lire, while manufactures of coral declined from 23,300,000 lire to 15,100,000 lire. The articles showing an increase in the value of the exports are fruit sirups, hemp, silk cocoons, paper manufactures, zinc ore, and refined sulphur.

Aside from the crisis in the wine-growing industry, due to the falling off in the export trade at a time when capital and land have been devoted to a greatly increased production of wine, Italy is suffering from a general agricultural depression aggravated by three successive seasons of poor harvests, but dating further back, and resulting from irrational and oppressive agrarian conditions, excessive and unequal taxation, and the military and other burdens that are the price of Italian unity and the triple alliance.

For the investigation of the wine crisis and the consideration of means of relief, on Signor Magliani's motion, a commission was appointed in December, 1888. On the basis of its report Signor Doda elaborated a scheme to facilitate the manufacture of commercial wines in Italy, and of alcohol and brandy by altering the internal and import duties on spirits. The revised excise duties, which obtained the approval of Parliament, are 120, instead of 180 lire, per hectolitre on the manufacture, and 20, instead of 60 lire on the sale of alcohol. The wines of the south of Italy require an admixture of alcohol to preserve them. Alcohol and spirits thus employed pay only 75 per cent. of the regular duty. The distillation of cognac is likewise favored by a special remission of duty. The consumption of alcohol in Italy is one litre per head of population, being only one sixth as great as in France.

For the five years that preceded the adoption of retaliatory duties, France received 40 per cent. of the total exports of Italian produce while 10 per cent. went to Germany, the same proportion to Austria-Hungary and also to Switzerland, 9 per cent. to Great Britain, 5 per cent. to the United States, and 16 per cent. to other countries. Of the imports France furnished 21 per cent., the same percentage as Great Britain, while Austria and Germany together sent 24 per cent., Switzerland 5 per cent., Russia 6 per cent., India 7 per cent., the United States 4 per cent., and

other countries 12 per cent. It was a natural consequence that the creation of impediments in the trade relations injured Italy more than France. In 1888 the proportion of Italian exports taken by France fell to 20 per cent., while importations of French goods still constituted 13 per cent. of the whole, in spite of differential duties, taking no account of the contraband traffic across the Swiss frontier. Germany did not supply a market for the Italian products that were shut out of France because Italian products are not in general request throughout Europe, and also because the customs duties on wine and oil are exceptionally high on the German frontier. Even in free-trading England there are duties operating against the importation of Italian wines and dried fruits. The United States did the most to relieve the glut of export articles that accumulated in the cellars and warehouses. The exports of Italian wines to America was 246,000 hectolitres greater in 1888 than in 1887; that of olive oil 40,000 quintals greater; that of orange sirup, 38,000 kilogrammes greater; that of lemons, 116,000 quintals greater.

The mercantile navy on Jan. 1, 1889, numbered 6,810 vessels, 853,033 tons. The sailing vessels had decreased in twelve months from 6,727 to 6,544, and the tonnage from 732,494 to 677,933, while the steam vessels had advanced in number from 254 to 266, and the steam tonnage from 163,131 to 175,100.

Railroads.—On Jan. 1, 1889, there were 12,604 kilometres of railroads in operation, not including 2,262 kilometres of steam tramways. The receipts in 1888 were 236,266,276 lire and the expenses 156,604,100 lire.

Posts and Telegraphs.—The number of letters sent through the post-office during the year ending June 30, 1888, was 177,534,000; of postal cards, 47,572,000; of circulars and printed inclosures, 179,612,000; of postal orders, 5,909,000; of letters with declaration of value, 53,000. The receipts amounted to 43,988,108 lire, and the expenses to 36,969,365 lire.

The length of the telegraph lines on June 30, 1888, was 35,727 kilometres, and that of the wires 120,483 kilometres, not including 161 kilometres of submarine telegraph.

Cabinet Changes.—The close of 1888 was marked by a Cabinet crisis which ended in the retirement of Agostino Magliani, who almost uninterruptedly for ten years had administered the finances of the kingdom. The ground of his resignation was the opposition to his project for covering the military expenditures manifested by the committees of the Chamber. The portfolios of Finance and the Treasury, which had been united in the hands of Magliani, were intrusted, the former to Magliani's predecessor who had retired in 1879 on the question of abolishing the grist tax, Bernardino Grimaldi, who was now transferred from the department of Agriculture and Commerce, and the latter to Constantino Perazzi, a senator and a member of the Right. Grimaldi's successor as Minister of Agriculture was Deputy Miceli, who was taken from the Left. On Jan. 5 Parliament was prorogued to meet again in the beginning of February. The Minister of the Treasury proposed in his financial statement to cover 31,600,000 lire

of the anticipated deficit of 95,000,000 lire for 1889-90 by economies to be effected chiefly in the extraordinary military expenditure, and to obtain the remainder by increased taxation on land, salt, stamps on business documents and weights and measures, patents and trade-marks, and from alterations in the income tax and the house tax. The cause of the financial embarrassment of the Government was, on the one hand, diminished customs receipts in consequence of the tariff war with France and the elevation of the duties to the point of prohibition and, on the other, to the augmentation of the military expenditures, which had risen 100,000,000 lire in two years, with the prospect of their being increased by 40,000,000 lire a year more for the succeeding five years, which General Ricotti declared to be unavoidable. A large section of the Chamber was determined to reject all propositions for fresh taxation without examination, asserting that the country could bear no additional burdens. In order to avoid an inevitable hostile vote, which, he asserted, would "endanger the interests of the state." Signor Crispi on Feb. 28 tendered the resignations of himself and his colleagues to the King. On March 2 the King intrusted him with the formation of a new Cabinet, on the ground that the differences between him and the majority that voted against him were financial rather than political. He had a few weeks before obtained a vote of indemnity in response to interpellations from the Right and the Extreme Left in relation to the Roman riots, though his majority was no longer more than 200, but only half as great. He selected new ministers for all the financial departments, except that of Public Works from the critics of the rejected budget, this time resorting to his own side of the house. Seismit-Doda, the new Minister of Finance, was the author of the bill that repealed the grist tax with which the Right, at the cost of lasting unpopularity, had maintained the financial equilibrium for many years. The Ministry of Public Works was divided, and the newly created Department of Posts and Telegraphs was given to P. Lacava, while G. Finali replaced Senator Saracco, who declined to cut down to a satisfactory figure the 384,000,000 lire of expenditure which the Government had undertaken to make on railroads within the next five years. The reconstruction of the Cabinet was not completed before March 8, and then only by the retention of the Moderate Boselli, without whom the Ministers of War and Marine refused to remain in the Cabinet. The only Conservative minister left was General Bertolè Viale. While Baccarini and Nicotera at the head of the "historical Left" gave support to the complaints of Extreme Radicals, Republicans, Irredentists, and Socialists, Bonghi and other politicians attempted to reorganize the Conservative party.

The Chamber met for the first time after the reconstruction of the Cabinet on March 18. The Minister of Finance outlined the new financial policy as one of retrenchment, announced a revision of the house tax, and gave the first intimation of a cessation of the tariff war by asking leave to present a bill for altering the scale of duties by royal decree. On the 30th of March the Chamber adjourned for a month. The new

Ministers of Finance and the Treasury adopted the plan of their immediate predecessors, condemned by Magliani, to use the fund reserved for the payment of pensions, amounting to 240,000,000 lire, for extinguishing a part of the floating debt. The Government was placed in a quandary by the death of the Negus Johannes and the victorious march of Menelek, rendering the immediate occupation of Asmara and Keren advisable, unless the Italians meant to retire altogether from Africa. The absence of Gen. Menebrea, the Italian ambassador, from the opening festivities of the Paris exhibition was the occasion of Radical attacks, and the agrarian disturbances in the north of Italy and distress amounting almost to a famine in the south were causes of embarrassment to the Government.

The legislative programme announced in the speech from the throne at the opening of Parliament in January embraced measures for the revision of the penal code, the reform of charitable institutions, a law of internal colonization, a project for the improvement of primary and intermediate education, the reorganization of courts of justice, and bills relating to public offices. New demands for the army and navy were declared necessary for strengthening the unity and independence of the country, as "peace is precarious unless guaranteed by arms"; but aside from military measures and public works already begun expenditures must be kept within the strictest limits in view of the financial situation. The most important work of the session was the elaboration of a uniform penal code. Other noteworthy measures of an unusually fruitful session were the bill for the more equitable assessment and collection of the building tax, and the reform of the provincial and communal administrations. The bill to promote the colonization of unoccupied lands in the kingdom was suggested by the unfortunate fate of many Italian emigrants driven abroad by the economical crisis. The Government brought back at its own cost 847 emigrants, the survivors of a party of 1,000 who were attracted to Costa Rica by the promise of high wages, and there endured inhuman treatment. Penniless colonists in Brazil petitioned to be returned to their homes, and tales of privation and suffering came from Pennsylvania, Texas, Nicaragua, Bolivia, Ecuador, and other parts of America. The bill for reforming the local administrative bodies had to do chiefly with the electoral franchise, which was before restricted to a small class of property holders. The dissensions between the municipal authorities and the people have more than once led to violent conflicts. Even in recent times the population of a town has sometimes risen in open revolt against unjust taxation and class legislation, seizing the municipal buildings by assault, sacking the offices, and burning the archives.

On June 1 the Chamber, refusing to be bound by the decision of the budget committee, struck 20,000,000 lire from the appropriations for railroad construction against the unanimous recommendation of the committee, and in consequence of this unprecedented act fourteen members of the committee resigned. The Government obtained the desired credit of 20,000,000 lire for the occupation of Keren on showing that it would lessen the cost of holding Massowah, but

only by making the vote a question of confidence. The Chamber ended its session on July 9, and the Senate a few days later, though the formal prorogation by royal decree did not take place till Aug. 2.

The New Session.—Parliament reassembled on Nov. 25, and was opened by King Umberto in person. In the royal speech he proclaimed the importance of dealing with social problems, and announced a series of measures for the amelioration of the condition of the people. The abandonment of the differential duties against France was promised, protection being declared necessary for the development of native industry on account of the adoption of the protective policy by other European governments, but not aggressive and retaliatory protection, inspired by distrust and suspicion. The King announced that no new taxation would be imposed to check the improvement of trade that had begun. The deficit would be allowed to accumulate in the expectation that receipts would begin to exceed expenditures after a little time. Should it appear desirable to make a special effort to wipe out the floating liabilities, it can be done when the renewal of prosperity has placed the nation in a better position to bear increased fiscal burdens. The army and navy will be maintained at all costs in the highest possible state of efficiency, for they are the ramparts of the unity of Italy, and, in conjunction with her rights, the most eloquent interpreters of her interests. The special measures announced include the reform of benevolent institutions, protection of the life of workmen in factories, improvement of the condition of teachers, unification of instruction in primary schools, and simplification and economy in the administration of the government of the state.

The Irredenta.—Irredentism at present is identical with opposition to the triple alliance, which is regarded not only as the cause of crushing burdens, but as the source of undemocratic, reactionary, absolutist tendencies, and with a leaning toward France, whence the advanced political thinkers of Italy derive their ideas of progressive liberty. The unredeemed provinces are the uppermost consideration only with a few old-fashioned fanatical Garibaldians. All the Radicals of the Opposition, as well as Republicans and Socialists, are in sympathy with the Irredentist agitators. Trent, which adjoins Venetia, and will naturally fall to Italy when compensation can be given to Austria in some other quarter, is inhabited by a quiet race of prosperous peasantry, who show very little concern about their separation from Italy. The Italian claim to Trieste, whence all the agitation, soreness, and troubles proceed, is not clear from either a geographical or an ethnographical point of view. On the seaboard and in the city the Italians predominate, but in the greater part of the province they are in a small minority, the Slavonic element being the most numerous. Yet in the city of Trieste an Irredentist municipal council and Irredentist journalists, agitators, and conspirators are constantly inviting repressive proceedings that are carried out with the rigor characteristic of Austrian methods. During the session of Parliament the Prime Minister was pursued with interpellations, and, at the

same time, the untoward incidents on the frontier so multiplied and the agitation grew to such magnitude that he determined to check the movement, although when in opposition he had often shown to the Irredentists his sympathy.

The pretext for fresh agitation in 1889 was the action of Consul-General Durando at Trieste. An Italian having died in the hospital, the Austrian public notary closed up his estate, and then notified the consular authorities of his readiness to turn over the property; but they refused to receive it, protesting that, according to the principle settled in the Franco-Italian consular convention, the administration of the estates of Italian citizens belongs to them. In the correspondence that ensued, the president of the Chamber of Notaries, an Italian, expressed his regret at having a quarrel with the Italian Government. In forwarding the papers to the chief judge of the Court of Appeals for his decision in the matter at issue, the consul-general marked this passage, as he said, to denounce the arrogant assumption that the Chamber of Notaries could come in conflict with his Government, as the Irredentists assumed, to draw attention to the sentiment of attachment to Italy conveyed in the words. By a strange perversion of reason, Dr. Giorgio Piccoli, the notary who opposed the interests of Italy, was glorified as a patriot, while Consul Durando, who defended them, was attacked as a servile tool of Austria, a spy, and an informer. The Italian Government investigated the matter, but could not discover that its consular representative had failed in his loyalty or duty. The fermentation caused by the incident in Trieste led to fresh acts of repression on the part of the Austrian authorities. On June 12 the editor of the "Indipendente," the chief Irredentist organ, was arrested with his entire staff. The continuance of Consul Durando in office produced such excitement that the Government gave way, and in the latter part of July removed him, but at the same time it suppressed the committees of Trent and Trieste that had been formed to assail the Government for truckling to Austria, to decry the triple alliance, and to agitate for the conquest of the unredeemed provinces. The Austrian Government sought to appease the excitement in Trieste by appointing an Italian, Signor Rinaldini, deputy governor.

The Papal Question.—The conflict with the papacy was brought to an acute stage in 1889 by the action of Leo XIII in appealing to the courts of Europe to coerce the Italian Government into restoring the dominions of the Church. In 1887 the Pope expressed in conciliatory language a desire to establish satisfactory relations with the Government. Signor Crispi likewise sought to find a basis for a *modus vivendi*; but overtures on both sides made more clear the hopelessness of attempting to induce the present pope to retract his *non possumus* and formally renouncing the claim to temporal sovereignty and the equally absolute position of the Quirinal, expressed by King Umberto in the words, "Rome is unassailable." The German, the Austrian, and other Governments rebuked the demand for their interference, and even that of France, in less decided, but still unmistakable terms, declined to encourage the attitude of the Pope. Catholic congresses were then set on foot—in France

first, at Marseilles and Lyons, then in Germany, Belgium, Portugal, Spain, and Austria—in which resolutions were adopted in favor of the restoration of the temporal power. Radicals asked the Premier why he did not secure their suppression, especially in Austria, where the bishops are dignitaries of the Government and where Italian patriotic celebrations are interdicted, and even the circulation of four fifths of the Italian newspapers is prohibited. Signor Crispi replied that such a step would authorize foreign governments to interfere in the internal affairs of Italy, whereas only recently all the Cabinets of Europe had declared that they had nothing to do with the claims of the pontiff. On the day of Pentecost a statue to Giordano Bruno was unveiled in the Campo dei Fiori at the entrance to the Vatican, on the spot where in 1600 he was burned alive for his religious convictions by the decree of the court of the Inquisition. In this demonstration against the pretensions of the Pope Radical and Socialistic societies, Masonic lodges, and universities of other countries as well as Italy, the municipality of Rome, public bodies from many towns, many members of the Senate, and a deputation from the Chamber participated. Nearly 30,000 persons marched in the procession, carrying 1,900 flags and banners. The Pope in an allocution treated this festival as one of the gravest injuries to which the Church had been subjected, blaming the authorities for permitting the sects hostile to the Church to glorify error and heresy in the city where God has fixed the residence of his vicar by rearing a monument of abomination on a holy day at the gate of a sacred place, turning Rome into the capital of impiety. From that time the rumor was revived of the determination of the Pope to liberate himself from his "captivity" in the Vatican, and remove his court to Barcelona, or Malta, or some other place outside the borders of Italy. The Pope finds it harder each year to restrain the patriotic impulses of priests who do not wish to live at enmity with the Government that has achieved the unity and greatness of their country. An article in the "Rassegna Nazionale," a magazine published in Florence, purporting to come from an ecclesiastic of high station, acknowledged that nine tenths of the Italian people are opposed to the restitution of Rome, and proposed as a compromise that a narrow strip of land giving an outlet to the sea from the Vatican should be placed under the sovereignty of the Pope as a permanent settlement of the papal question. Scarcely was it known that the author was Bishop Bonomelli, of Cremona, when that prelate, bowing to the reproach of the Pope, recanted the views that he had expressed.

The failure of the attempt to reach an understanding with the Curia impelled Crispi to proceed to the reform of the benevolent institutions. The capital accumulated for centuries through private gifts and bequests and public aid amounts to 1,500,000,000 lire, yielding an annual revenue of 135,000,000 lire, of which only 84,000,000 lire are actually applied to charitable objects. There are 20,000 charitable institutions supported by their own income. But a defective administration had defeated the purposes of the founders, the provisions of the law, and the energy of the Government. The clergy have ob-

tained control over the charities, which to a great extent originated in the religious impulses of the founders and have been developed with the aid of the priests and under their influence. A large part of the revenues, instead of being devoted to the original purposes, is expended on processions, rites of worship, and ecclesiastical pomp. Another considerable proportion is absorbed by institutions that are harmful in their economical effects according to the teachings of modern political economists, for instance, the 3,000 institutions that annually expend 3,500,000 lire in aiding indigent couples to marry. A bill to reorganize and reform the *opere pie* or charities of the Kingdom was introduced in the autumn session of Parliament, and was passed by the Chamber, on Dec. 19, by 196 against 98 votes. It deprives the ecclesiastical authorities of the direction and administration of charitable institutions. In the new penal code, which was promulgated on June 30, 1889, and goes into force on Jan. 1, 1890, among other provisions directed against the clergy, makes it a penal offense for any bishop or priest to publicly advocate the claims of the pontiff to temporal sovereignty, punishable with fine and imprisonment. A law that affects the Roman question less directly, but with much greater results is that which changes the electoral system in communes and provinces, making the qualifications of voters the same as in parliamentary elections. The Clericals, while abstaining from national politics, have always pointed to their majorities in the local bodies as a proof that they were supported by the sentiment of the country in their demands. In the elections that took place under the new law in November the Liberals were victorious at Rome and in nearly every other city.

Commercial Treaties.—Before 1888 Italy had reciprocity treaties with agreed schedules of duties with five European states. In order to clear the way for a protective tariff the treaties with Austria-Hungary, France, Spain, and Switzerland were renounced, the one with Germany alone being continued. In this treaty the rate of duties was fixed for only a small list of articles. As the French Government refused to agree to the new scale of duties proposed by Italy, negotiations were broken off, and a tariff war begun on March 1, 1888. A new treaty of commerce and navigation, with new and somewhat reduced conventional tariffs, was concluded with Austria-Hungary. This inured to the benefit of German manufactures, enabling them to occupy with their products the market that was closed to French wares. A treaty was concluded with Spain on April 30, 1888, securing to the citizens of each country free trade and navigation, protection of patents, trade-marks, and patterns, and the rites given to the most favored nation. It was supplemented by conventional tariffs. By a provisional agreement Switzerland was accorded most-favored-nation treatment during the absence of a treaty. The negotiations between the two countries were attended with difficulties arising from the connection with commercial relations with France and from the required agreement on conventional tariffs. A treaty was finally concluded on Jan. 23, 1889, which went into effect on April 15, and will re-

main in force, like the Spanish treaty, till Feb. 1, 1892, and thereafter by tacit consent from year to year. Switzerland lowered the duty on vermouth one half and made reductions on agricultural products and on silk, while Italy moderated the duties on chocolate, cheese, cotton manufactures, watches, and dynamo machines. The treaty was approved by the Chamber of Deputies on March 29. Subsequently negotiations were entered upon for the regulation of smuggling and frontier intercourse. On April 1, a commercial treaty between Italy and Greece was signed at Rome.

Agrarian Disturbances.—Labor strikes in Parma and Ferrara, rioting in Faenza, bankruptcies and lack of employment in Piedmont, Lombardy, Venetia, and Sicily, and suffering in Sardinia, Apulia, Calabria, and the Abruzzi gave evidence of the wide-spread depression that affected Italy. Conservatives joined with Socialists in the agitation against militarism. The peace congress that met in Milan was followed by similar meetings in favor of disarmament in central and southern Italy. Bonghi acted as chairman of the one that was held in Rome. In Lombardy, where half a lira was the ordinary daily wage for an agricultural laborer, as also throughout Venetia, and where an oppressive feudal system of forced labor on the landlords' estates and the unfair division of cocoons and other products raised on shares kept the peasants in the bondage of debt, serious outbreaks occurred. The general demand was for stated hours of work and a steady wage of a lira a day. At Arluno, in the district of Gallarate, a mob of peasants broke into the chateau of Signor dal Verme, the principal proprietor, and made a bonfire of the furniture. They were dispersed by the military, and several were arrested, but no witnesses appeared against them. In Corbetta, near Milan, the gendarmes were driven into the town hall by an overwhelming number of peasants, armed with stones, yet only when the mob forced a way into the building did they use their firearms, killing and wounding a number of persons. In Bareggio the police fired on the crowd. In other communes in the district of Abbiategrasso and elsewhere in the Milan province the disturbances were put down without bloodshed. Signor Crispi, in response to the interrogatory of a Conservative deputy, averred that no exceptional measures against the peasants would meet with his approval. In Sardinia a state of anarchy prevailed. Whole villages revolted, and at Bosa sanguinary conflicts took place between the people and the carabinieri. In the interior the peasantry formed bands of brigands, and proprietors were compelled to fortify their houses.

Colonial Possessions.—Before 1889 Italy had acquired territorial rights over about 1,000 kilometres of the western shore of the Red Sea. Her possessions extend from Ras Kasar, in 18° 2' of north latitude, to Ras Sinthiar, in 12° 50' of north latitude, along the coast, and for an indefinite distance into the interior, the extreme limit being not far from the 38th meridian of east longitude, reckoned from Greenwich. The total population is estimated at 229,600. Full rights of sovereignty are exercised over: 1. Assab and its territory, which extends from the Bay of

Beheta on the north to Ras Sinthiar, a length of 130 kilometres, and contains about 5,400 inhabitants; 2, the island of Massowah and adjacent islets, with a part of the coast of Embemi, reaching to and including the peninsula of Buri, the total population being about 63,000; 3, the Dahlak isles, with 2,000 inhabitants; 4, Keren and Asmara, districts occupied in 1889. By virtue of a treaty with King Menelek, concluded on May 2, 1889, and ratified by the King of Italy on Sept. 29, 1889, the Italian Government has asserted a protectorate over the Kingdom of Abyssinia and has authority to represent the Negus in all his external relations. The protectorate was announced to the powers, in compliance with the general act of the African Conference. The Italian representative at the court of the King of Ethiopia will act as his Minister of Foreign Affairs. King Menelek was unable to establish his authority in the province of Tigreh till near the close of the year, owing to the military aid given to the pretender Mangascia by the Soudan dervishes. On Dec. 2 the rebellious army of Degiac Mangascia and Ras Alula was finally defeated in a pitched battle in the Haramat district, by the forces of Degiac Sejum and Degiac Sebhat, chief of the Agame district of Tigreh, supported by a body of native levies under the command of Captain Bettini. Menelek, at the head of his own army, had several engagements with the dervishes, in which he was generally successful. Before joining Mangascia, Ras Alula planned the capture of the Italian post of Saganeiti, but it was revealed to the Italians, who defeated his purpose by a counter-march of native auxiliaries. Makonnen, Menelek's ambassador to the King of Italy, departed for his own country at the end of November, after having concluded a loan of 2,000,000 lire, guaranteed by the Italian Government, on the security of the custom's receipts and the gold mines of Vollega, which King Menelek has promised to have explored and worked.

Massowah is the only seaport giving access to the Kingdom of Abyssinia. Trade will not be possible till the province of Tigreh has been pacified and brought under the rule of King Menelek. By the law of July 10, 1887, there was created a special corps of African troops, counting 5,000 men, including 238 officers, with 492 horses. The commerce of Massowah in 1887 amounted to 158,920 lire by land, and 12,614,447 lire by sea, including both exports and imports. The number of vessels that were entered at that port was 2,065, of which 1,241 were Italian, the aggregate tonnage being 200,997; the number cleared was 1,871, of 211,142 tons. There is a railroad in operation at Massowah, 27 kilometres in length.

On the side of the Indian Ocean Italy has declared a protectorate over the sultanate of Oppia or Obbia, on the Somali coast, extending from Warshekh to Ras Avad, and over neighboring territory on the north, reaching from Garad and Vadi Nogal as far as 8° of north latitude. Several Somali chiefs, toward the end of January, petitioned, through the Italian consul at Zanzibar, for a protectorate, which was proclaimed by the consul on Feb. 8. On May 16 the notifications were sent to the powers, in accordance with the stipulation of the Berlin Treaty. In

November, 1885, the Sultan Jussuf Ali of Oppia, had granted various public rights and private monopolies to the German East African Company. Oppia, which lies about 6° north of the equator, is a small port, near which there is good water. In exchange for this port, Italy gave up

her rights over the district of Kismajo. In November the extension of the Italian protectorate southward over the Somali and Galla coast as far as the confines of Zanzibar, at the mouth of the Juba river, just south of the equator, was announced.

J

JAPAN, an island empire in the north Pacific ocean. Its coast line is computed at 17,151 miles, and its area, by survey and data of 1886, at 147,335 square miles. Japanese statisticians divide the empire into four great sections—Hondo, Shikoku, Kiushiu, and Hokkaido or Yezo; and Hondo, or the main island, into the Central, Northern, and Western divisions. Geographically there are 85 provinces. Riu-Kiu (Loo-Choo) is included in Kiushiu, and Chishima (thousand islands), or the Kuriles, in Hokkaido (northern sea-circuit). Politically, the divisions are *ken* (or prefectures), 45; sub-prefectures, 562, and mayoralties, 11,442. In the three imperial cities (*fu*) are 37 wards; in the empire are 802 rural districts, 12,096 towns or cities, and 58,609 villages. Of the total area, rice land (irrigated) occupied 6,643,018 acres; meadows and fields, 4,760,540; buildings and gardens, 888,920; forests, 18,233,717; and all other land, about 32,993,085 acres (reckoning 2½ acres to a *chō*).

The Government is an absolute monarchy, which is to be modified during the year 1890. The Emperor is Mutsuhito, born Nov. 3, 1852. He is assisted by a Cabinet of ten ministers, who have charge of the imperial executive departments, under which also are eleven bureaus unattached to the departments. The Senate, or Genro-in, consists of 66 members and 6 secretaries. The ministries are those of the Privy Council and Imperial Household, presided over by a Minister President of State, Finance, Foreign Affairs, Navy, Agriculture and Commerce, Justice, Home Affairs, War, Education, and Communications.

The Constitution.—Since 1868, the basis of the Imperial Government of Japan has been the oath of the Mikado, publicly sworn in Kyoto, April 6, 1868. By this oath he promised that: 1, a deliberative assembly should be formed; 2, all measures should be decided by public opinion; 3, the uncivilized customs of former times should be broken through; 4, the impartiality and justice displayed in the workings of nature should be adopted as a basis of action; and 5, that intellect and learning should be sought for throughout the whole world, in order to establish the foundations of the empire. On the five principles thus enunciated, the evolution of political opinion has gone on, until the consummation of the event of Feb. 11, 1889. On this day, amid extraordinary civic demonstration in Tokio, and national rejoicings, the Mikado promulgated the new Constitution, which makes the government of Japan in spirit representative, and in form a limited monarchy. The seventy-six articles of the instrument treat of the Emperor, rights and duties of subjects, the Imperial Diet, the ministers of state and the Privy Council, the

judicature, finance, and supplementary rules. The explanatory and appended ordinances, which bring the total number of articles up to 322, treat of the details of organization and procedure of the Houses of Peers and Commoners, and of voting. The sacred and inviolable nature of the imperial title and perpetuation of the throne is fully emphasized in the new document, which thus embodies the spirit of all Japanese history. The Emperor remains as heretofore the source of all law; but his legislative function is henceforth to be exercised with the sanction of the Diet. Only in the presence of dire necessity can he issue ordinances in lieu of laws, and such ordinances must be laid before the Diet at its next session, when, if not approved by that body, they become void. The parliamentary system is vested in a House of Peers and a House of Representatives, constituting the Imperial Diet. The upper house is partly hereditary, partly elective, and partly nominated; in the first class are members of the imperial family, princes, and marquises; in the second class are both noblemen and commoners; in the third class are men of ability and learning, chosen for life by the Emperor. The limited number of counts, viscounts, or barons, are chosen by members of their own order for seven years. In each of the three imperial cities and forty-four prefectures, the fifteen persons paying highest taxes may elect a member. The number of nominated and elected men is not to exceed the total of members holding titles of nobility. The possible and maximum composition of the House of Peers will be: Members sitting by hereditary right, 37; noblemen elected by their peers, 109; members otherwise chosen, mostly commoners, 146; total, 392. The House of Representatives will consist of 300 members, at least thirty years of age, who pay national taxes to the amount of 300 *yen*. They are chosen for four years. On the basis of the present electorate, there will be one representative for every 2,000 voters, or one to every 125,000 inhabitants. Tokio sends 12 members, Osaka 10, Kyoto 7, and the most populous prefectures from 10 to 13, the average to each prefecture being 6. Electors must be twenty-five years old and pay national taxes to the amount of 15 *yen*; must write their own ballots, signed by their own name, and stamped with their private seal. Minute directions as to voting, in over 100 articles, are embodied in the imperial proclamation. The law will go into effect April 1, 1890. The electoral lists, begun on April 1, are posted for public scrutiny and correction for 15 days after May 5, are settled June 15, and the national election day is July 1. The National Assembly buildings are in process of erection in Tokio, and the Diet will assemble

in the autumn or winter of 1890. Heretofore the rights of the common people have never been acknowledged, defined, or guaranteed, though their duties and responsibilities have been onerous. Under the new Constitution, the right of abode and of changing the same, of domicile and freedom from search, secrecy and inviolability of letters, freedom of religious belief, liberty of speech, writing, publishing, public meeting, association, and petition, under the limits of the law, and of exemption from arrest, detention, trial, or punishment, except according to law, are firmly guaranteed. Many of the young men, especially those educated in the United States and Europe, are already preparing for election to the Diet.

Finance.—The following figures are in yen, one yen being equal to 73·4 cents. According to the budget of Count Matsukata Masayoshi, sanctioned by the Mikado, March 5, 1889, the total amount of revenue for 1889-'90 is fixed at 76,600,185·23 yen, and the total expenditure at 76,596,312·75 yen. The chief items of revenue are: Land tax, 42,248,981·24; tax on saké, 14,497,438·16; on tobacco, 1,492,805·53; soy, 1,215,253·60; customs duties, 4,105,542·19; fees and licenses, 1,413,748·32; government industries and property, 5,989,355·94. The chief items of expenditure are: Imperial household, 3,000,000; redemption and interest on national debt, 20,000,000; relief fund for agricultural distress, 1,200,000; expenses of internal government, 6,603,087·69; expenses of Finance Department, 3,870,872; War Department and army, 12,097,177·43; Navy Department and navy, 5,596,000; Department of Justice, 3,371,240; education, 1,007,732; communications (telegraphs, etc.), 3,748,837; colonial board (Hokkaido), 2,120,601·27; internal improvements, roads, rivers, etc., 2,083,936·86; redemption of paper currency, 2,253,928; extra expenses in army and navy for forts, ships, etc., 2,827,544·82. The national debt amounts to 248,326,669·50, of which 6,430,376 is foreign. Paper money in circulation amounts to 46,666,086·40, against 120,927,209 in 1878, and 66,395,945 in 1887. For the first time, the maximum issue of exchequer bills has been fixed by ordinance, and for 1889-'90, at 13,000,000.

Army and Navy.—The special report of the War Department, issued in March, 1889, shows the available military force of Japan, in the Imperial Body Guard and the six garrisons, as follows: On a peace footing, 21 general commanding and 298 field officers, 2,851 captains and subalterns, 6,541 non-commissioned officers, 50,749 soldiers, 7,166 horses, 160 guns; on a war footing, 21 commanding, and 350 field officers, 5,336 captains and subalterns, 11,520 non-commissioned officers, 183,484 soldiers of all arms, 7,166 horses, 240 field guns; a total *personnel* of 60,474 on a peace, and 200,725 on a war basis. There are also 2,046 *gensd'armes*, 101,193 in the reserves and 43,872 in the second reserves. The military system comprises the War Department, and under it the army, the department being presided over by the Emperor, who appoints the minister. The army has been modeled on the French system, but will be reorganized on the German plan. With the money spent for fortifications, the military system consumes over one sixth of the revenue of the empire. In 1886,

there were 29 ships in the navy, with a tonnage of 41,839, and a horse-power of 39,879, and cannon to the number of 165. The *personnel* was as follows: Admirals and superior officers, 159; officers, 1,305; sub-officers, 1,655; seamen, 6,482; functionaries and naval employés, 1,213; total, 10,814.

Trade.—The value of commodities exported during 1888 amounted to 65,705,510 yen, and the imports to 65,455,234 yen, a total foreign trade of 131,160,744 yen; and an excess of exports over imports of 250,276 yen, and an increased foreign trade over the previous year of 27,051,752 yen. The exports, by countries, were; United States, 22,618,483; France, 13,636,250; China, 11,426,714; Germany, 1,617,564; Canada and British America, 857,323; Corea, 707,175; Italy, 705,988; Austria, 638,394; East Indies, 457,078. The imports, by countries, were: Great Britain, 28,693,367; China, 10,360,134; East Indies, 7,689,092; United States, 5,648,733; Germany, 5,260,896; France, 4,125,189; Corea, 1,041,764. The chief articles exported were camphor, coal, copper, cuttle-fish, porcelain, rice, silk, and tea, the two latter articles amounting in value to yen 30,276,000, and 6,038,000 respectively. In imports, the chief articles were cotton, iron, kerosene, machinery, woven goods, and sugar, the values being 15,832,000, 2,086,000, 3,519,000, 6,681,000, and 7,556,000 yen, respectively. Nearly all the tea, and half the silk, came to the United States. The principal imports into Japan from the United States were kerosene, clocks, condensed milk, flour, railway locomotives, paper-making and other machinery, watches, books, and leather.

Population.—The population, by census completed Jan. 1, 1888, is 39,069,007, of whom 19,731,354 were males, and 19,337,653 females. The births during 1887 were 1,057,336, of whom 541,712 were boys and 515,824 girls, or, 2·71 to every 100 people, or 105 boys to every 100 girls. The death figures for 1887, unusually large on account of cholera, were: Males, 385,921; females, 367,096; being 95·12 females to every 100 males, and 1·93 death for every 100 people. In 1887 the births were 304,519 in excess of deaths, making an average increase of population of 1·46 to 100 souls. Of the total number of Japanese, 30,005,322 live on the main island Hondo, and 6,021,457 in Kiushiu, leaving but 3,042,228 in all the other portions. The people, ranked as nobility, gentry, and commons, numbered respectively 3,228, 1,528,653, 29,478,844; the average to each family being 4·75, and to each household 5·02. Of people over one hundred years old there were 44, one being one hundred and ten. The density of population is greatest in Western Hondo, after which in their order are Central Hondo, Shikoku, Kiushiu, and Northern Hondo, the average being for the whole empire 265 inhabitants to the square mile. The Hokkaido contains but 6·5 persons to the square mile. Four cities have over 100,000, and 23 have over 30,000 population. In 1887, 333,873 marriages took place, or 8·55 to every 1,000 people; and 110,769 divorces, or 2·84 to every 1,000 people; or, about one divorce to every three marriages, the number of married couples being 7,346,224, or 188·03 to every 1,000 of the population. In 1886, 7,107 persons, 4,626 males, and

2,481 females, committed suicide, against 7,282 in 1885, and 5,603 in 1884, the greater number in each year being over fifty years old; while 175 cases of suicides in 1886 were by persons sixteen years old or under. Strangulation is the favorite means employed, the figures in each year showing nearly three times as many victims by this mode as by all others combined. The other methods, in the order of their popularity, are, drowning, cutting, stabbing, shooting, poisoning, falling, explosion, and biting the tongue. As to causes, in 1886, we find the suicides ascribed to: Insanity, 2,598; loss of fortune or grief, 2,171; love, 311; sickness, 759; remorse or shame, 273; other reasons being intent to defeat justice or domestic punishment, to avoid payment of debts, or on account of family disputes, etc. There were in 1886, 12,960 deaths by violence or accident, of which 104 were of burglars or at the hands of robbers, 23 by highwaymen, 79 from revenge, 98 from love or jealousy, 24 in resistance to armed force, 2,494 by fire or the accidents of conflagration, 62 from the attacks of beasts or the bites of venomous insects, 1,236 from famine, etc.

Agriculture and Industry.—Rice is the chief food. In 1887, 6,592,673 acres of irrigated land was cultivated for this cereal, the yield being 200,000,000 bushels. Of rye and barley, 3,978,437 acres were cultivated, yielding 79,115,720 bushels. Salt farms in 1886 occupied 27,782 acres of sea-shore and other land, employing 16,579 boilers, producing 26,429,565 bushels of salt. In sericulture, 1,619,689 cards of eggs, 6,099,073 pounds of fine and 1,460,974 pound of inferior raw silk, and 422,636 pounds of hanks of reeled silk were produced. Of tea, 28,044,622 pounds of fine, and 28,078,609 of inferior grades were grown, making a total crop of 56,123,231 pounds. The sugar produced amounted to 113,061,803 pounds, of which 18,765,221 were raw and 94,296,582 were refined. Of saké (various kinds of fermented or distilled liquor made from rice), 15,105 proprietors in 15,025 distilleries or breweries produced of common saké or rice beer 114,762,000, and of distilled saké or rice brandy 1,964,360, and of other kinds of liquor 3,188,760 gallons, respectively. Of saké made for family use and prohibited from sale, 25,291,480 gallons were produced by 734,778 persons. The Government tax, since 1884, of one yen (73.4 cents, silver) on every ten gallons manufactured and sold, and of eighty sen (73 cent) on the same amount for household use, has notably diminished the product as compared with former years. The average quantity to each inhabitant in 1887 was 15 quarts, as compared with the average of 21 quarts during the years 1879-'83. Of soy 44,985,480 gallons were made in 1886 by 12,979 manufacturers in 13,132 places. Of textile fabrics in silk, cotton, hemp, etc., the value of piece goods for clothing was 16,132,796 yen, and for girdles, string, etc., 1,692,849 yen. In mining products, the metal obtained in Government mines amounted to 470 pounds of gold, and 156,046 pounds, troy, of silver; and of copper, iron, and coal, 18,359,4 and 310,904 tons (of 2,240 pounds) respectively. By private enterprise, there were mined, in round numbers, of gold 193 and of silver 18,555,295 pounds troy; and of copper 21,677,935, iron 21,-

796,809, lead 518,625, antimony 1,238,000, tin 141,675, coal 2,166,942,308 pounds avoirdupois, with manganese, arsenic, copper sulphate, petroleum, sulphur, porcelain clay, lignite, graphite, marble, alum, asphalt, steatite, mica, etc., in quantities greatly exceeding those of former years when the same mines were under Government control. Nearly all the mineral wealth of Japan is now exploited by private enterprise, the Government not finding the working of the mines a profitable enterprise.

Transportation and Communication.—In no respect has the country improved its facilities more than in the matters of roads, vehicles, and water craft, and in postal, telegraph, electrical, and steam service. Whereas private or public wheeled vehicles for passenger service were, until 1860, unknown, and carts and wagons rare, there were in 1886 1,959 private carriages, 8,567 horse-wagons, 166,058 *jin-riki-sha*, 474,290 carts or wagons drawn by men, and 5,949 ox-carts, a grand total of 677,349 vehicles. Of ships built on European models, there were, of steamers 460, of 63,314 tons, and 15,107 horse-power; of sailing vessels, 688, of 56,927 tons. Of junks there were 16,757, of 13,934,090 bushels capacity, and of boats 523,652; besides 146,606 bateaux exempt from taxation. Of the 1,148 ships of foreign build, 688 were sailers, and 460 steamers, of which 62 were of iron and 12 of iron sheathed with wood. Of steamers 16, and of sailers 23, were built in Japan. The figures for 1888 are much larger, the Japanese now building also war and merchant ships of large size in their own yards of wood and of iron. The railways from Tokio to Kyoto and Kobe, and to Serdai are finished, the number of miles open to traffic exceeding 1,000; those in course of construction May 24, 1889, measuring 553, and those surveyed 447 miles, making a grand total of 2,000 miles of railway, which are expected to be serviceable by 1891. Of lighthouses, in 1886, there were in operation 59, in addition to 16 buoys and 7 beacons; besides 103 coast signals of various sorts sustained by private individuals and local tolls on passing vessels. The Government outlay for salaries, oil, and repairs in 1886 was \$66,876.

Political Statistics.—There are 79,277 officers, in four ranks, receiving pay from the national treasury or from local taxes, to the total amount of 1,368,518 yen monthly, who form the *personnel* of the Central Government and local authorities. Of these, 25,578 are in the executive departments, 3,224 in the judicial service, 28,346 are police functionaries, 6,542 are connected with prisons and penitentiaries, 2,330 are engineers, making a total of 66,020 civilians of official rank; the remainder of the 79,277 being commissioned officers of the army and navy. In the 45 local assemblies, now organized in the prefectures, which discuss and apportion the funds raised by local taxation, there are (March, 1889) 2,216 members, out of a possible total of 2,228; of whom 90 are chairmen or vice-chairmen of the standing committees, on which are 306 persons. The *shizokû* or gentry number 507, and the common people 1,709 of the total number. There are now about 10,000 Japanese abroad, in Hawaii, United States, Great Britain, Germany, France, and Russia, and legations are established in 12 countries.

Political Events.—The year 1889 was one of the most memorable in the history of Japan. New treaties, foreshadowing the abolition of the galling restrictions, such as the extra-territoriality clause and the forced imposition of obnoxious tariffs, which have kept Japan in an inferior position before the treaty powers, have been made with Mexico, and negotiated with the United States, Germany, and Russia. That with Mexico was signed at Washington, D. C., Nov. 30, 1888, and sanctioned and published by the Japanese Government in Tokio, July 17, 1889. By this treaty, foreigners (that is, in the present case, Mexicans) are for the first time allowed to reside, travel freely, trade, and hold property anywhere in Japan, and all special restrictions as to jurisdiction and commerce are removed. The other treaties not yet ratified will probably throw all Japan open to general foreign trade and residence by 1891. On Jan. 11, 1889, the Mikado removed from the last of his temporary quarters occupied since his arrival in Tokio, Nov. 26, 1868, and entered the new and splendid imperial palace just completed at a cost of 11,200 yen. Here, on Feb. 11, were held the solemn ceremonies of the promulgation of the new Constitution of the empire. The indemnity of \$15,000, paid by the United States for the Japanese families at Ikéjima, who were killed or wounded by handling unexploded shells fired during target-practice by an American man-of-war, was received in Tokio in April, and on July 8, 1889, was paid. Viscount Arinori Mori, Minister of Education, formerly the Mikado's envoy in Washington, was assassinated in his own house by a student and fanatical Shintōist, Feb. 11, while in full dress for attendance at the imperial palace to witness the granting of the new Constitution. The assassin was cut down by Mr. Mori's attendant. Several newspapers were suspended on account of sympathy with the murderer, at whose grave a demonstration was prevented by the police, the biography and published poems of the assassin being also suppressed. In April the Cabinet was strengthened by accession to office of members of the Radical party. Further evidences of the complete obliteration of marks of division and old causes of alienation of feeling were seen—1, in the inauguration of a monument on the battle-field of Uyéno, in Tokio, to the memory of the followers of the Tycoon who fell in the War of the Restoration, 1868-'70; 2, a requiem mass in the Roman Catholic church in Tsukiji, Tokio, at the request of the last Tycoon, Hitotsubashi, still living at Shidznoka, for the repose of all Europeans who had died by war, assassination, or otherwise, in Japan previous to Jan. 3, 1868, when the present Imperial Government began; and, 3, a grand religious ceremony by 75 Buddhist priests at Ikéjima, near Yokohama, for the repose of the souls of the crew of the United States steamer "Oneida," sunk by the Peninsular and Oriental steamer "Bombay," in 1870, when more than 100 Americans in the United States navy were drowned. Nine new ports have been opened, at which foreign vessels can load rice, wheat, coal, etc. The severe loss of life, and consequent distress, caused by earthquakes, fires, and floods during the year, exceeding any year since 1859, have caused a great drain on the national treas-

ury. A permanent fund is maintained by the Government, which is drawn upon for "fire," "flood," "storm," and "other calamities." In 1886, 70,902 households, containing 1,225,888 persons were assisted, at a cost of \$877,745; but the expense for 1889 will exceed these figures. From October to the end of the year 1889, there were serious dissensions in the Cabinet, and great political excitement throughout the country, on the subject of treaty revision. The cry of the ultra-patriotic natives is "Japan for the Japanese," with the intent of yielding only a minimum to the demands of the foreign powers. On Oct. 11 Count Ito, the Minister President of State, resigned, and on the 18th Count Okuma, Minister of Foreign Affairs, was attacked by an assassin, who threw a gas-pipe dynamite bomb into the minister's carriage as he was entering the yard of his office. The assassin, who had carried his weapon in an umbrella until the critical moment, was thirty years of age, and, like all the assassins so numerous since 1868, was of the ultra-Conservative party. Count Okuma's life was saved after amputation of the right leg. A new Cabinet was formed in December, of which Counts Yamagata and Aoki are prominent members. On Nov. 3 Prince Haru, born Sept. 6, 1879, was proclaimed heir-apparent to the throne, and presented with the famous sword "Jar-cutter," forged by Amakuni, A. D. 701-703.

Religion.—In 1888 there were in all the empire 191,968 Shintō shrines and temples, with 14,849 priests, and 72,039 Buddhist temples, with 56,266 priests. Of Protestant Christians there are 443 foreign missionaries, who in 1888 baptized 6,959 converts. There are 288 church organizations, 142 native pastors and 257 unordained native preachers and helpers, 25,514 church members (of whom 6,884 are men, 4,968 women, 1,970 children are communicants), with 9,697 students in schools, the contributions of the native churches amounting to 64,454-70 yen. The Roman Catholic adherents number 10,026, and the Greek Catholics 15,542, the former being taught by French, and the latter by Russian missionaries. The Protestant missionaries are almost wholly American and British.

JEWS. The year has been happily uneventful, so far as persecutions and excesses are concerned. There has been a gratifying cessation of disorders against the Jews in Russia and Roumania, while in Germany the reign of the new Emperor has begun auspiciously for toleration and liberty. Slight outbreaks in Morocco were soon quelled. In Austria-Hungary the anti-Semitic spirit manifested itself, but the Government was firm, and the agitation ceased.

Apart from local incidents, the one international subject of discussion has been that of emigration, and notably in connection with Baron de Hirsch's munificent gifts for Jewish education, which aggregate \$20,000,000. The Austrian Government has given its consent, and the movement for industrial education among the Jews of Austrian Galicia will be begun without delay. But Russia has unequivocally refused its consent. Whether it is unwilling to have its destitute Jewish population raised to a higher educational plan, or regards Baron de Hirsch's project as opposed to home interests and policy, its action is fraught with disastrous consequences for the

Russian Jews. Meanwhile, Baron de Hirsch has been turning his attention to other outlets. He is considering the feasibility of devoting many millions for the emigration of Russian Jews to Canada, the United States, and the Argentine Republic. English and American Hebrews are being consulted on the subject, and action can not long be deferred. A migration on a large scale of the Jewish *proletariat* to the Occident is not regarded with favor, and it is to be hoped that a wiser policy will prevail, which will result in better education at home or in adjacent lands, rather than in any assisted emigration with its attendant dangers.

The labor problem is another international topic of the day. In London, it was made the subject of governmental action, and the dangers of indiscriminate immigration were clearly indicated; the massing of cheap labor was shown to produce evil results for large numbers of the Jewish wage-earners who crowd in special lines of work. This fact has aroused the leaders of the London Jewish community to increased educational and philanthropic activity. A similar danger has been threatened in New York, owing to the great increase in Jewish immigrants; other nationalities have contributed their share to the crisis, and the Jews of New York raised by their Educational Fair, in December, about \$120,000 for the erection of a Hebrew institute for religious and industrial training, with free lectures and amusements for the immigrant classes. Technical schools for the lads, industrial classes for the girls, the kindergarten for the children, are rapidly following each other in the chief American cities, and will provide for the Americanization of the immigrant.

Among the civic honors of the year gained by Jews abroad may be mentioned the appointment of Baron Henry de Worms, of London, as member of the Privy Council; the knighthood of Sir Benjamin Benjamin, of Melbourne, and his appointment as a member of the Legislative Council of Victoria; Alfred de Rothschild's elevation to the shrievalty of London; Joseph E. Ezra made sheriff of Calcutta; Prof. Ascoli appointed senator by the King of Italy; Josef Israels gained medal of honor at the Paris exhibition; Sir Henry Aaron Isaacs became Lord-Mayor of London.

Among the notable deaths abroad were Dr. Asher Asher and Sir Benjamin Samuel Phillips, of London; Dr. A. Cohen, of Groningen; Giuseppe Revere, Cavalier Trieste of Italy; M. Roest, of Amsterdam; Misses Anna Maria Goldsmid and Amy Levy, of London; Sir Jacob Behrens, of Bradford, England; Hon. Robert Nunes, of Jamaica; Samuel Goldenthal, of Jassy; Hirsch Rabinowitz, of St. Petersburg; Counts Nissim and Abraham de Camondo, Col. Gabriel Salvador, and Mr. E. Veneziani, of Paris; Solomon Brodsky, of Odessa; Baron Ignaz Kolisch, Bernhard Singer, and Josef von Weilen, of Vienna; Samuel Alatri, of Rome; Prof. G. Weil, of Heidelberg; Baroness Nina Levi-Vivante, of Florence; M. B. Jesurun, of Curaçoa; A. William Jacobson, the Hague; Walter Myers, archaeologist, of London; and Rabbis Liberman, Nancy; M. Mendelssohn, Kimberley; Jacob Chadowski, Berlin; Herrman Jonas, Hamburg; Elias Karpeles, Vienna; Wicser, Bohemia; Brull, of Moravia.

In the United States, the Rev. Dr. Samuel Hirsch, of Chicago; the Rev. Dr. Elkan Cohn, of San Francisco; Sigismund Kaufmann and Isaac Phillips, of New York; Henry S. Frank, Philadelphia; Hon. Lewis Arnheim, Augusta.

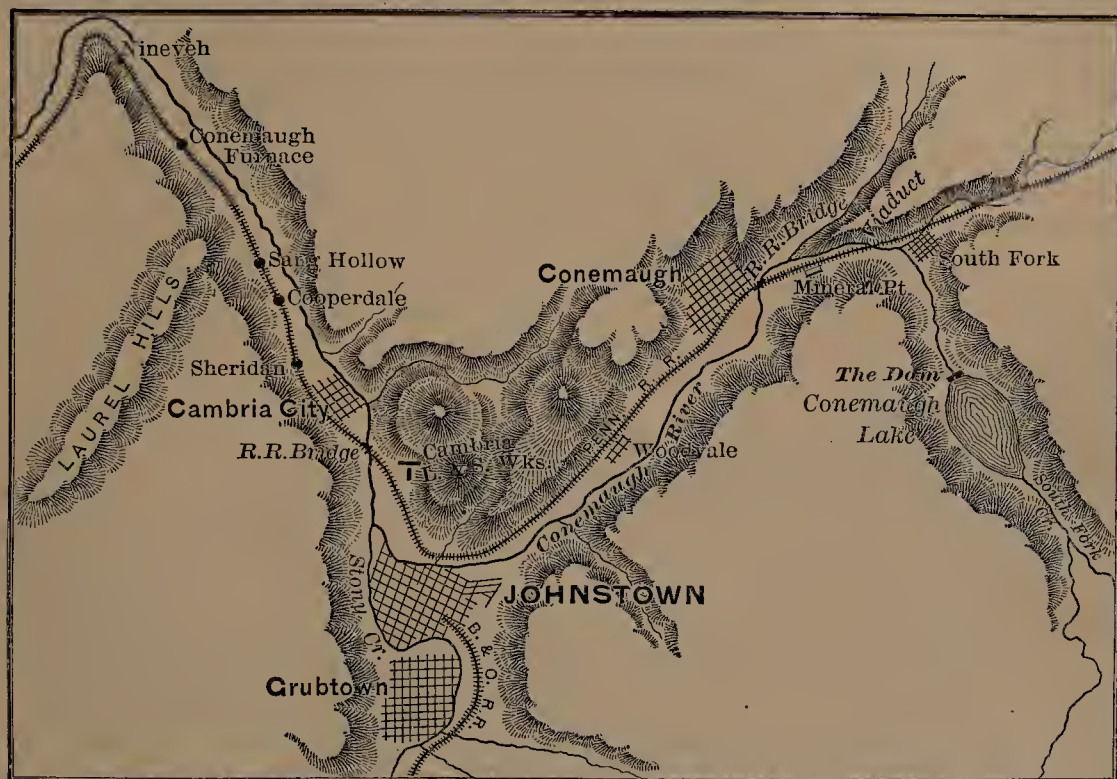
During the year, the new edifice for the Jewish Hospital and Home was erected in Philadelphia and a large building fund was raised for a Jewish Home for the Aged in Cincinnati. A large subscription list was gathered for the American Jewish Publication Society, and Mrs. Magnus's "Jewish History" and Graetz's history were selected for early issue. The Hon. Solomon Hirsch, of Portland, Oregon, was appointed United States Minister to Turkey. The Jewish Ministers' Association and the Sabbath-School Union held their regular meetings. The entire Jewish community in New York united in a Hebrew Educational Fair, lasting two weeks, and with gross receipts of \$135,000, to build a mission edifice in the heart of the tenement-house district down town. Dr. A. S. Isaacs was appointed Professor of German Language and Literature in the University of New York. Dr. L. Grossman, of Detroit was appointed Professor of Hebrew in the University of Michigan.

JOHNSTOWN FLOOD. Among the great catastrophes of the century in the United States, the flood that overwhelmed the towns of the Conemaugh valley in western Pennsylvania, on May 31, stands foremost of its kind in horror and destructiveness. Though the amount of property swept away was more than \$10,000,000 worth, this was the most trivial element of loss. That which makes the Johnstown flood so exceptional is the terrible fact that it swept away half as many lives as did the battle of Gettysburg, one of the bloodiest of the civil war, and transformed a rich and prosperous valley for more than twenty miles into a vast charnel-house. Johnstown is located on the Pennsylvania Railroad, 39 miles west-southwest of Altoona and 78 miles east-by-south of Pittsburg, and was a city of about 28,000 inhabitants. As the seat of the Cambria Iron Works, one of the greatest industrial establishments of the United States, with an average employment of 6,000 men, it was the most important member of the chain of boroughs annihilated; and as such has given the popular title by which the disaster is known. The Conemaugh valley has long been famous for the beauty of its scenery. The Pennsylvania Railroad follows its curves for nearly 25 miles. Lying on the lower western slope of the Alleghany mountains, the valley, inclosed between lofty hills, resembles in a general way an open curve hook running from South Fork, where the inundation first made itself felt in a southwesterly direction to Johnstown, and thence sixteen miles northwest to New Florence, where the more terrible effects of the flood ended, though its devastation did not entirely cease at this point. (See map.) A lateral valley extends about six miles from South Fork in a southeasterly direction, at the head of which was located the Conemaugh lake reservoir, owned and used as a summer resort by the South Fork Hunting and Fishing Club of Pittsburg. Here game, both fin and feather, was preserved with the most jealous seclusion. Below South Fork came successively the boroughs of Mineral Point, Conemaugh,

Woodvale, and then the city of Johnstown. Conemaugh creek, formed by two branches joining at South Fork, flows through the length of the valley, unites at Johnstown with Stony creek, and thenceforward is known as the Conemaugh river. The larger portion of Johnstown lay between the two creeks, but the celebrated Cambria Iron Works, the heart of the business of the whole section, were on the north side of Conemaugh creek, and above the railroad, which crossed the river made by the confluence of the

about fifty feet wide, and ordinarily not more than knee-deep in the middle. Stony creek may be defined in similar terms, except that it is somewhat wider and deeper.

Conemaugh lake, distant about 6 miles from South Fork, at the head of a lateral valley, was formerly an old reservoir which had been a feeder of the now disused Pennsylvania canal. It became the property of the Pennsylvania Railroad when that company purchased the franchises and works of the canal, and was after-



MAP OF THE FLOODED VALLEY.

creeks on a magnificent arched bridge of stone. This bridge was the scene of one of the most terrible phases of the whole tragedy. South of Johnstown, across Stony creek, lay two populous suburbs, Kernville and Grubtown, in a lateral valley. Following the windings of the valley beyond Johnstown, in a northwesterly direction, came successively at brief intervals Cambria City, Conemaugh Furnace, Morrilville, Sheridan, Sang-Hollow, Nineveh, and New Florence. All these villages, which in many cases were almost coterminous, were suburbs of Johnstown—either the residences of the employés of the Cambria Iron Works, or the seats of subsidiary steel and iron mills, with some independent industries. The same may be said of the boroughs south of Johnstown, and those in the upper portion of the valley. They were all essential portions of the Johnstown system of industries, and all shared a common fate. The topography of the doomed valley now may be easily grasped—a deep hollow about a half-mile in width, with inflexible barriers on either side, turning sharply at Johnstown in the direction of nearly a right angle. Conemaugh creek, with low banks, not more than two feet in height, is a shallow run

ward sold to the South Fork Fishing and Hunting Club. In altitude it was about 275 feet above the Johnstown level, and was about $2\frac{1}{2}$ miles long and $1\frac{1}{4}$ mile in its greatest width. In many places it was 100 feet in depth, and it held a larger volume of water than any other reservoir in the United States. The original size of the lake had been quadrupled by engineering artifice to meet the demands of pleasure and sport. The dam that restrained the waters was nearly 1,000 feet in length, 110 feet in height, 90 feet thick at the base, and 25 feet wide at the top, which was used as a driveway. For ten years or more this dam was believed to be a standing menace to the Conemaugh valley in times of freshet, though fully equal to all ordinary emergencies. Frequent protests had been made to the South Fork Club, which they met by having a monthly inspection made. Though the reports of the engineer had always been favorable, there had been panics on several occasions among the inhabitants of the valley. It was claimed by engineers who examined the remains of the dam after the break that it was badly devised and built. The points of criticism may be summed up as follows: Both the original and reconstructed dams were built

entirely of earth, with no heart wall, and only riprapped on the slopes. It is said that no other dam in the United States over 50 feet high lacked a central wall of puddle or masonry. The center of the reconstructed wall, instead of crowning in the middle, was 2 feet lower than at the ends. The rock spill-way had been contracted and partly obstructed with a grating to prevent the escape of fish. The original discharge-pipe at the foot of the dam had been closed when the wall was reconstructed. These two facts greatly reduced the rate of maximum discharge. The total result of all the differences of condition was that the new dam was no safer against excessive flood, apart from inferior construction, than the original wall would have been with a crest one half lower above the bottom of the spill-way. The portions of the dam remaining intact consisted mostly of the old structure. There seems to have been no great leakage through the dam, the disintegration coming from water over the top. With a dam structurally weak and with insufficient means of discharging a surplus volume, it seems now pretty clear that it was only a matter of time before such a reservoir, situated in a region notorious for its extreme freshets, would yield to the enormous pressure and send down its resistless waters like an avalanche to desolate the valley. This is precisely what it did do on May 31, the break occurring about 3 p. m. It became evident before noon to those at the dam—for there were two engineers superintending work at the time—that the rapidly swelling waters had begun to threaten immediate danger. The violent and protracted rains had not seriously affected the lake till the day before, when the level rose rapidly. As soon as the engineers realized the peril they put a force of men at work opening a sluice-way to ease the pressure. All attempts were in vain. At 2.30 p. m. a foot of water was flowing over the dam. Several messengers had ridden down earlier in the day to warn the people in the valley of the imminent danger. Two hours before the break of the dam the facts had been reported and freely discussed in Johnstown, many refusing to believe the story, on the ground that similar alarms had previously proved ill-founded. There is no question that ample warning was given and that all the people in the Conemaugh valley could easily have escaped with many of their valuables had they acted promptly. When it became certain that the dam would soon go, Engineer Park, who had been working at the sluice-way, mounted a swift horse and rode down into the valley at breakneck speed, warning all within reach of his voice to fly at once to the hills for safety. Another warning had been given to the people of Johnstown in the fact that before noon a great log-boom on Stony creek, some ten miles back, had broken and been precipitated on the town by the high waters, which stood in the streets knee-deep and in some cases nearly to the second stories of houses. The annual recurrence, however, of freshets, more or less severe, obliging people to move themselves and their furniture to an upper story, had so hardened their minds that the familiar danger carried no threat of anything worse. Most of the workmen at the Cambria Iron Works had been excused from work to attend to the needs of their families

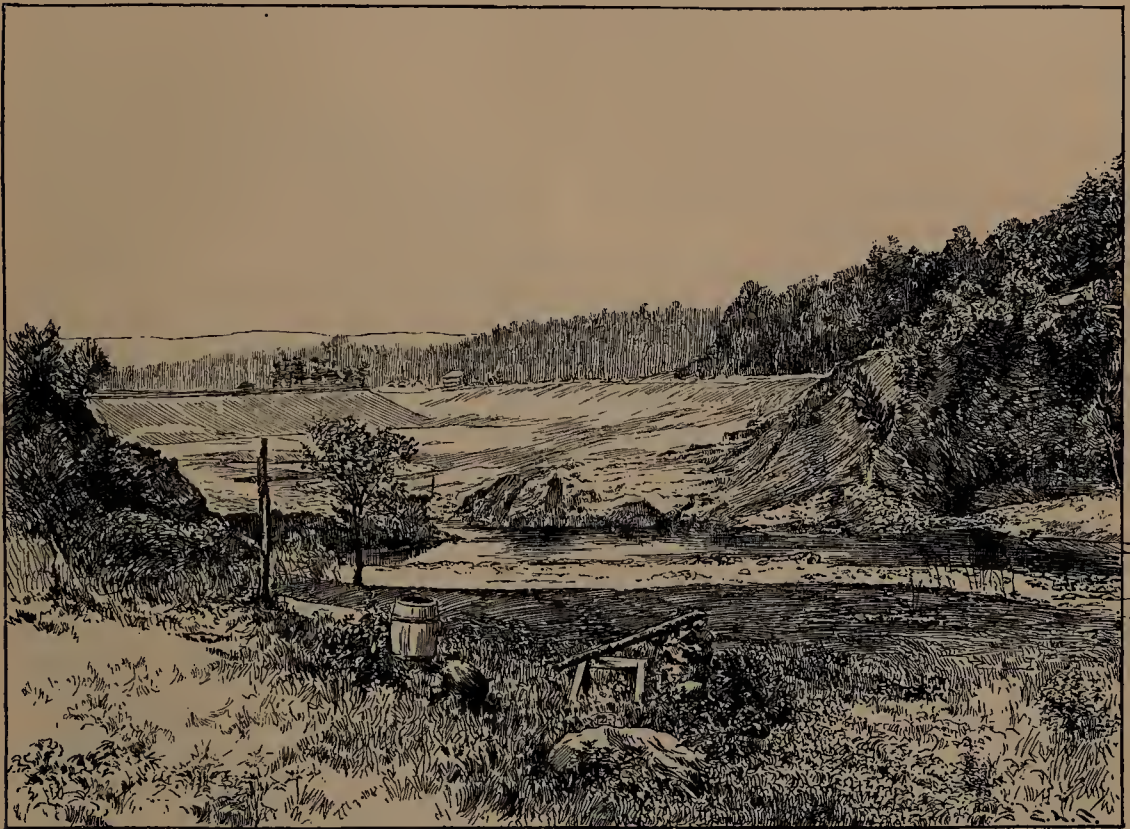
brought about by the swollen waters of Stony creek. Many boats were plying in the streets, which had been transformed into canals. Yet all were cheerful, and most were disposed to laugh at the oft-reiterated threat of the Conemaugh lake. A few hundred had, however, taken the matter seriously and found security for themselves and their families on the neighboring hillsides.

When the center of the dam yielded at 3 p. m. it did so in a break 300 feet wide. Trees and rocks were hurled high in the air, and the vast boiling flood sprang down the ravine like an arrow from the bow. It took one hour to empty the reservoir. In less than five minutes it reached South Fork, and thence, changing the direction of its rush, swept through the valley of the Conemaugh. An attempt to follow its method of proceeding, considered merely as a mechanical force, will be of interest. When the deluge reached South Fork, one of the first obstacles demolished was the viaduct over the fork. This bridge was built as a State work as a part of the old portage road, and its destruction made the most serious gap between Johnstown and Harrisburg. After sweeping away the viaduct, the main bore of the deluge, with the smaller bores on the sides, washed out the portage road for miles. A small bore rushing down a brook behind South Fork village was backed up by the main flood, and at once demolished all the houses, but, happily, with trifling loss of life. The flood moved steadily forward with increasing height, velocity, and power. Trees in great numbers, matted with shrubs and underbrush; rocks, some of them large boulders; the timbers and *débris* of houses—were carried on the great rampart of water in its rush. The flood accommodated itself to the breaks and irregularities in the line of its march. Its thrust was lateral and downward as well as forward. While scouring every curve and bend in the mountain walls, its center moved straight on Johnstown over the somewhat tortuous bed of the Conemaugh. Owing to the difference of velocity on the center and sides, due loss of power by lateral thrust, and the following of the lines of curves and bends, eddies and whirlpools were formed, which churned and dashed together the immense mass of material, that grew larger with every yard of advance, as the waters made and sucked in fresh wreckage. Wherever mountains retreat, they push out flats or slopes to the edge of the valley stream. The villages and boroughs overwhelmed were built on just such flats, and only such portions escaped as had crept up the hillsides. The houses at Mineral Point, where the valley widens somewhat, were lifted from their foundations by a side-bore of the flood and added to the contents of the insatiable maw that swallowed everything and sought for more. With the procession of the deluge, trees, logs, *débris* of buildings, rocks, railroad irons, and the indescribable mass of drift were more and more compacted for battering power; and what the advanced bore of the flood spared, the mass in the rear, made up of countless battering rams, surely destroyed. At East Conemaugh was the yard of the Pennsylvania Railroad, with about thirty-two engines and cars, switches, tracks, etc. Every building in the

yard was demolished in an instant. Engines weighing twenty tons were tossed like feathers in a gale. The downward thrust of the flood dug holes for some and buried them deep. Others it carried along on the top of the boiling mass amidst the chaos of material. The embankment here was designed as a sort of break-water at times of freshet, and was a kind of concrete made of cinders, slag, and similar material. Failing to destroy by direct attrition, the deluge hurled its battering-rams at the rear of the rampart, scooped the sand out underneath and pounded it by downward thrust, and soon ripped away the sturdy wall. The borough of Franklin, on the other side of Conemaugh creek, was eaten up with equal ease, only the portion built on the mountain slope escaping.

two minutes wrought this result. The barbed wire works and the steel mills were full of ponderous machinery, engines, fly-wheels, boilers, etc., but the giant force of the flood picked them up like chips. A locomotive weighing twenty tons was carried off and deposited on the Johnstown flat a mile away.

The great catapult of water, half a mile in width, nearly forty feet in height, and carrying on its seething front a vast, compact mass of trees, logs, house-fragments, wheels, railway iron, machinery, rocks, brick, hundreds of miles of barbed wire tangled in the midst, and hundreds of human bodies, now struck Johnstown. No human machine devised by man ever traveled with such lightning speed. The chief night operator of the Western Union Telegraph Company



SITE OF THE BROKEN DAM.
From a photograph by Langill & Darling.

Iron bars piled here in the stockyard of the Cambria Iron Company were picked up by the hundreds of tons and carried away. They were afterward found scattered all the way to the stone viaduct at Johnstown when the flood subsided. Woodvale, diagonally opposite Johnstown and nearly contiguous, had a population of about 3,000 people, being the most densely settled and well-built suburb. In addition to a woolen-mill, flour-mill, and tannery, it was the seat of the Gautier Barb Wire Mills of the Cambria Company. About 500 houses and all other structures were ground into fragments, with a woful loss of life, mostly women and children. All that remained was a pier or two of the bridge, a part of the flour mill, and a fragment of the smoke stack of the Gautier Mills. Less than

relates the following fact: "At three o'clock yesterday afternoon the girl operator at Johnstown was cheerfully ticking away that she had to abandon the office on the first floor because the water was three feet deep there. She said she was telegraphing from the second story, and the water was gaining steadily. She was frightened, and said many houses were flooded. This was evidently before the dam broke, for our man here said something encouraging to her, and she was talking back as only a cheerful girl operator can when the receiver's skilled ear caught a sound on the wire made by no human hand, which told him that the wires had grounded, or that the house had been swept away in the flood from the lake, no one now knows which. At three o'clock the girl was there, and at seven minutes past

three we might as well have asked the grave to answer us."

The distance from Conemaugh lake to Johnstown, something over eighteen miles, must have been traversed in about seven minutes. Dead bodies were found early next morning in the Alleghany river at Pittsburg seventy-eight miles distant. The attack on Johnstown was first made by the flood in two wings. The left made a bore that scoured the Johnstown flat at the base of the mountain, rushing headlong across the southeast portion of the city to Stony creek, already greatly swollen and overflowing many of the streets both of Johnstown and Kernville. The right wing and center cleft several paths through the heart of the city, sweeping all before them, and followed mainly the course of Conemaugh creek. This portion of the flood carried the bulk of the mass of drift and *débris* straight forward till it was stopped by the Pennsylvania railway bridge on the western border of Johnstown. The workmanship of the viaduct, built of the strongest stone masonry and a model of construction, was proof against the onset. The great masses of *débris* at once choked up the arches and made a solid dam, while the hillside, rising sheer at the bend, helped to divert and hurl back the force of the waters. The weight and volume of the down-rushing flood recoiled and were thrust back on the center of the town, and the collision with the returning left wing, which had circled round the other side of the town and returned after destroying Kernville and Grubtown, was terrific. This completed the destruction of Johnstown, as the violence of contact between the two floods, each bearing great piles of wreckage, made a whirlpool of inconceivable fiereness. Waves shot into the air to a great height and the seething of the waters, with the grinding together of the *débris* borne on the waves, gave forth sounds as appalling as the scene. Survivors who passed through this experience safely declare its horrors to have been far beyond the power of words to narrate. The dramatic and touching stories of suffering and of the terrors of that miserable night would fill volumes. Hundreds of people who had clambered on the roofs floated about on these frail supports in the boiling sea all the afternoon and all night before the subsidence of the water allowed rescue. Many clinging to fragments of wood had their holds knocked loose, their limbs broken, or their brains dashed out by the impact of other fragments of wood or metal. Thousands were suffocated at once in their own houses, in the shops, or on the streets without further suffering. It is a significant fact that most of the dead were women and children. The men were to a much greater extent out of doors and in a position to battle for their lives. Many who would have died to save their wives and children were unable to return to their houses before the latter were swept away. The outlet of Stony creek was almost completely choked up, as was the channel of the Conemaugh. The vortices made by the recoiling of the two wings of the flood carried houses around in their slowly diminishing circles until most of them were ground to pieces. There are living men, women, and even children, who circled around in these vortices all night, making the frightful journey dozens of

times in the midst of thousands of deadly missiles being shot hither and thither by the crazy flood. How any such escaped, it is difficult to conjecture. The parts of Johnstown that escaped complete destruction, though sadly battered, were those fringing the mountain and built almost on its slope in the southeast portion of the city; a little group of unusually substantial residences in the heart of the city, which seemed by some strange accident to have avoided the power of the whirlpool action; a row of stone and brick buildings near the railway, the office of the Cambria Iron works, the telegraph office, and several business blocks. All these, though, were stripped of everything but the bare walls. In Kernville, which lies about a mile back from the center of Johnstown across Stony creek, all the houses standing on the lower levels were either destroyed or badly dislocated in structure, or removed from the foundation. Those houses built on the hillside escaped entirely, and Hornerstown, a suburb on the other side of Stony creek, on the mountain slope, remained untouched by the disaster that wiped Johnstown and a string of villages out of existence.

The checking of the flood at the railway bridge, which sent back such a crushing recoil of waters to finish the destruction of Johnstown, did not prevent a vast and powerful onward flow. The deluge forced its way over and under the bridge, and rolled forward to destroy, in part, the villages below, though in no place was the disaster so terrible and sweeping as above the bridge. The Cambria Iron Works, standing on the edge of Johnstown, though they were badly shattered and the walls knocked to pieces, were far from being a complete loss. Most of the machinery, being of the heaviest construction, met with no worse fate than being dashed from place or upset. Nearly half of Cambria City was destroyed, and the villages below—Sheriden, Conemaugh Furnace, Sang-Hollow, Nineveh, and New Florence—were seriously damaged by the flood. The loss of life in these places, though measured on the scale of a less stunning calamity, noteworthy as a part of the great human tragedy, was but trifling as compared with the awful destruction at Johnstown, where the malignity of fate rose to the pitch of the sublime. All thoughts, when recalled to the topic of the Conemaugh flood, at once settle on the one doomed city. The most tragic and startling phase of the disaster at Johnstown occurred at the bridge, after the worst of the flood was over and the waters had begun to subside.

The breakwater caused by the choking up of the railroad viaduct caught thousands of tons of wreckage which massed itself in the bed of the river and piled up to a height of ten feet above the level of the bridge. The accumulation of the wreck grew greater until on Saturday morning, when the flood had largely subsided, it is estimated to have covered a space more than an eighth of a mile in length and nearly the same in width, to a depth of from thirty to fifty feet. This mighty mass of drift consisted of logs, timber, houses either whole or in fragments, machinery, iron in all forms, both raw material and manufactured, every conceivable kind of household utensil and furniture, dead bodies, and living persons imprisoned in the houses.

Hundreds of miles of barbed wire from the yards of the Gautier Mills were wound in, around, and through this mass, binding it fast and solid in addition to its cohesion by weight. Hundreds of people on the steep bluff, against which the mountain of *débris* arose almost within jumping distance, watched and labored to rescue such living prisoners as could free themselves from the tangled mass. Suddenly the cry of fire rang from mouth to mouth. Little tongues of flame could be seen darting here and there through the wreck. It seems to have caught fire in several places at once. Whether the fire was caused by the upsetting of a hot stove or lamp in some one of the closely wedged houses, or from friction, can not be known. In spite of the water-soaked material, the flames spread rapidly, until it threatened to be a conflagration. It was

have been dead bodies already before the fire touched them.

Two days after the deluge Adjt.-Gen. Hastings, of Pennsylvania, arrived on the scene with several battalions of State troops to take charge of the place and preserve order, as well as to direct in the distribution of relief. Great trainloads of supplies rolled in on the Baltimore and Ohio Railway without delay, which had been less injured than others by the storms, arriving on Sunday night. The Red Cross Society, under the leadership of Miss Clara Barton, reached Johnstown with a large force of physicians and nurses, tents, hospital supplies, commissary stores and clothing on Monday night, and were busy at their noble work next morning. Benevolent societies from half a score of States had their agencies established promptly in the stricken city.



RUINS OF JOHNSTOWN.

From a photograph by Langill & Darling.

believed that there were hundreds of living human beings imprisoned in the wreckage, as well as dead bodies. The excitement became terrible, and redoubled attempts were made to rescue the living threatened by the most horrible of all deaths. Not fewer than fifty persons were rescued from the colossal pyre, but the fierceness of the flames finally compelled the cessation of further effort. The fire burned for about twelve hours, and it can never be certainly known how many of the living were burned, but it is believed by many that there were several hundred who met their fate here. In afterward blasting the solid mass of *débris* several charred skeletons, or half-burned bodies, were found, but these might easily

Every large city in the Union contributed with enthusiasm to the funds and stores of the Citizens' Relief Committee. It was the proud boast of those who had the work of relief in charge that after the first two days no Johnstown sufferer needed to be without ample food, clothing, and shelter. The most rigid sanitary precautions were enforced to prevent sickness, and the work of gathering and burying the dead was pressed with the greatest possible urgency, as the first requisite. All this work was carried on by the Citizens' Relief Committee, under the general executive supervision of Gen. Hastings. It was not till the 11th of June, nearly two weeks after the flood, that the State formally

took charge of the task of clearing and cleaning the valley above Johnstown, including, of course, that city itself as the center of work. Through Gov. Beaver the State was pledged to contribute \$1,000,000 to the all-important preliminary duty of removing the wreck that encumbered the valley, and leaving the region in a condition fit for individual enterprise in renovation. For at least three weeks the operations of removing and burying the dead, a necessary but horrible duty, filled the air with the most sickening odors, and great quantities of disinfectant were necessarily used, as well as other precautions taken to prevent infectious diseases. Contracts for cleaning the city and vicinity were given out to energetic and experienced contractors, and within a brief period from the time of the assumption of the work by the State 2,500 men were employed, many of them people of Johnstown. The Cambria Iron Works, too, promptly found work for hundreds of operatives in clearing out the shops and setting up the machinery, though they did not begin operations again for more than two months. Among the most useful forms of relief contributions were large numbers of patent frame houses, one and two stories in height,

which could be erected at once. The generosity of the United States and of the world responded to this occasion with the same promptness with which it answered to the exigencies created by the Chicago fire. After the most thorough possible official sifting, accomplished mainly through the boards of registration and inquiry, the loss of life in the Conemaugh valley is set down as 2,280, of whom 741 were unidentified. Probably exact figures will never be reached, as many reported drowned are supposed to have left Johnstown immediately after the flood without any after-report of their condition or whereabouts. It is claimed that not far from 5,000 bodies were actually recovered and buried, or sent to friends.

The total contributions from the beginning, which were placed under the control of the Flood Relief Commission, were a little more than \$2,500,000. The total of contributions through the commission, various relief committees, and beneficial organizations is considered to have been equal in value to \$3,000,000. A goodly portion of this great sum of course reached Johnstown in the form of material in the earlier days of need. New York contributed \$500,000, and Philadelphia the same amount.

K

KANSAS, a Western State, admitted to the Union in 1861; area, 82,080 square miles; population, according to the last decennial census (1880), 996,096; capital, Topeka.

Government.—The following were the State officers during the year: Governor, Lyman W. Humphrey, Republican; Lieutenant-Governor, Andrew J. Felt; Secretary of State, William Higgins; Auditor, Timothy McCarthy; Treasurer, James W. Hamilton; Attorney-General, L. B. Kellogg; Superintendent of Public Instruction, G. W. Winans; Superintendent of Insurance, Daniel W. Wilder; Railroad Commissioners, James Humphrey, L. L. Turner, and Almerin Gillett; Chief Justice of the Supreme Court, Albert H. Horton; Associate Justices, William A. Johnston and Daniel M. Valentine.

Population.—The population of the State, as returned by the assessors one year ago, was 1,518,552; for this year the same returns make the population 1,464,914, a loss of 53,638, or 3½ per cent. These figures indicate that the period of reaction has set in, after the first rush of immigrants into a new country. There are eight cities in the State that have over 10,000 inhabitants. The largest city, Topeka, contains 40,622.

Finances and Valuations.—The year 1889 began with a balance of \$243,830.75 in the treasury, and a bonded debt of \$803,500. A portion of the latter sum was paid during the year. The revenue was derived from the following tax levy: For general purposes, 3¼ mills; for interest on the State debt, 2 mill; for State-house construction, 4 mill; for the State University 2 mill; total, 4½ mills. On the assessed valuation for 1889 this levy yielded the following sums: General revenue fund, \$1,226,771.24; State-house fund, \$144,326.02; interest fund, \$72,163; university fund, \$72,163.01; total, \$1,515,432.27. The assessed valuation for the year, as fixed by

the State Board of Equalization, is \$360,815,073. The increase over 1888 is \$7,577,750.20; increase in railroad property, \$4,665,185.03; increase in levy, \$67,105.09.

Legislative Session.—The regular biennial session of the Legislature began on Jan. 8, and adjourned on March 4. Both Houses were almost unanimously Republican, only 1 of the 40 Senators and 5 of the 125 members of the House being of the opposition. At a caucus of the Republican members, on Jan. 9, United States Senator Preston B. Plumb was unanimously nominated for re-election, and at a joint session of both Houses, on Jan. 23, he was formally chosen Senator, there being no opposition candidate. The legislative work of the session included 271 new laws. The railroad commission was empowered, on application of persons interested, "to require any railroad company to construct any depots, sidetracks, switches, or other facilities at any point on the line of the railroad, for the convenience and safety of the public in the transaction of business with the railroad, and the interchange of business between connecting or parallel railroads at any station, town, or city."

Two laws were passed concerning miners. The first provides that it shall be unlawful for the owner, agent, or operator of any coal mine to employ any person within a coal mine, or permit any person to be in a coal mine for the purpose of working therein, unless there are at least two openings separated by natural strata of not less than eighty feet in breadth if the mine be worked by shaft or slope, and if worked by drift not less than fifty feet, except where the mine is over 100 feet deep, when men to the number of 25 may be employed six months while the second shaft is being built, and in mines 700 feet deep the number of men to be employed in excess of 25 shall be designated by the mine inspector prior to the

opening of the second air shaft. The second law was intended to prevent such disasters as occurred at the Frontenac mines in November, when 39 persons were killed by an explosion. The first section provides that owners, lessees, or operators of mines shall employ shot-firers to fire the shots therein. Said shots shall be fired once a day, but shall not be fired until after all miners and other employes working therein shall have been hoisted out of said mine.

An act for the suppression of "trusts" declares to be unlawful and void "all arrangements, contracts, agreements, trusts, or combinations between persons or corporations made with a view, or which tend to prevent full and free competition in the importation, transportation, and sale of articles imported into this State, or in the production, manufacture, or sale of articles of domestic growth or the product of domestic raw material, or for the loan or use of money, or to fix attorneys' or doctors' fees, and all arrangements, contracts, agreements, trusts, or combinations between persons or corporations, designed, or which tend to advance, reduce, or control the price or costs to the producer or to the consumer of any such products or articles, or to control the cost or rate of insurance, or which tend to advance or control the rate of interest for the loan or use of money to the borrower, or any other services. Persons or corporations entering into such an agreement or combination, or connected therewith or issuing "trust" certificates of any such combination, are not only subject to a heavy fine, but are liable to any person injured by the advance in price caused by such combination in the full sum paid for such article or service by the purchaser. It is also made a good plea in bar or abatement by the defendant in any suit that the subject matter of such suit is a result of such unlawful combination or trust, or that the plaintiff is a member or agent of such unlawful combination.

In certain cities of the first class, a commissioner of elections is to be appointed by the Governor, holding office for four years, who shall have charge of the registration of voters in such city and who, with the local board of metropolitan police commissioners, shall constitute a board of commissioners of elections. This board is given full power to prepare for and conduct all elections in such cities.

An effort was made to encourage the manufacture of sugar, by authorizing cities and townships to subscribe stock for the construction of sugar factories to produce sugar and sirup from sorghum cane, and to issue bonds to pay such subscription. The amount of the annual bounty to be paid to sugar manufacturers under the act of 1887 was increased from \$15,000 to \$40,000.

An act was passed to submit to the electors a constitutional amendment increasing the members of the Supreme Court to seven. A similar amendment, submitted in 1886, was defeated. It was also voted to submit a second amendment changing the time for the regular biennial meeting of the Legislature to the first Tuesday of December, beginning in 1890, and allowing members \$3 a day for not more than 90 days at a regular session and 30 days at a special session.

The legal rate of interest, when none is stipulated, was fixed at 6 per cent., and any agree-

ment to receive or pay more than 10 per cent. was forbidden.

The selling, giving, or furnishing of tobacco, opium, or other narcotics to minors under sixteen years of age was prohibited.

For 1890 and 1891 an annual tax of 3.4 mills for current expenses and of 0.2 of a mill for interest on the public debt was levied. From the proceeds of the latter tax the interest on the Quantrell raid scrip is also to be paid. Provision is made for the retirement of \$36,120.13 of this scrip during the year. A State Capitol tax of 0.4 of a mill annually for the next two years will provide funds for continuing the construction of the central Capitol building. The State University, instead of receiving an annual appropriation from the Legislature, is to be supported by the levy of an annual special tax sufficient to raise \$75,000 each year. The appropriations include \$100,000 for the erection of buildings for the State Industrial Reformatory at Hutchinson, and \$25,000 for a building at the State Industrial School for Girls at Beloit. The following sums were appropriated for the regular support of State institutions for 1890 and 1891: Asylum for the Blind, \$40,000; Asylum for the Deaf and Dumb, \$90,000; Asylum for the Feeble-Minded Youth, \$42,549.92; State Reform School, \$53,786; Osawatomie Insane Asylum, \$165,000; Topeka Insane Asylum, \$240,000; Industrial School for Girls, \$12,000; State Normal School, \$9,550; State Agricultural College, \$16,150; State Penitentiary, maintenance, \$267,310; expense of coal mine, \$87,629.49. Other acts of the session are enumerated below:

Providing a penalty for breaking or destroying any gate, pond, bank, or side of a pond, creek, or spring used by another for propagating fish, or using means to destroy the fish, young fry, or eggs.

Providing punishment for any person who abuses or maltreats willfully any child under eighteen years, or who, having possession or custody of a child under fourteen years, shall expose or aid in exposing such child with intent to abandon it, or shall dispose of it with a view to its being employed as an acrobat, gymnast, contortionist, circus-rider, or rope-walker, or in any exhibition of a like dangerous character, or as a beggar or pauper or street singer or street musician, or who shall receive, hire, exhibit, or have in his custody any child for such purposes, or who shall decoy, keep, receive, send, or dispose of any female child under eighteen years to a house of ill-fame.

Providing for a State inspector of oils.

Punishing by a heavy fine or by imprisonment the seller of any patent right or alleged patent right who does not first file with the clerk of the district court certified copies of his letters patent, together with a sworn affidavit that such letters are genuine and have not been annulled, and that he has full power to sell.

Providing for the enrollment of all living Union soldiers and sailors of the civil war resident in the State, and of the widows and orphans of those deceased.

Providing that destitute Union soldiers and sailors of the civil war and their wives, widows, or children shall receive aid from the local authorities, and shall in no case become inmates of an almshouse.

To punish the adulteration of food and drugs.

For the encouragement of silk culture by appropriating money to establish a silk station.

Appropriating \$36,000 for buildings for the Grand Army of the Republic at Ellsworth for reunion purposes.

Appropriating money to continue the two forestry stations at Trego and Ford.

Limiting the liability of counties for costs in criminal cases to those cases in which conviction results, or where the county attorney approves the prosecution of such case either before or after its trial.

To punish persons unlawfully using or wearing the badge of the Grand Army of the Republic and the insignia of the Loyal Legion of the United States.

To punish cruel treatment of animals.

Amending and regulating the procedure in garnishment proceedings.

Authorizing a bounty of one dollar an acre for breaking sod in Haskell County.

To prohibit the writing of fire insurance policies by any but resident agents of any authorized company.

Repealing the law making premium notes taken by certain insurance companies a lien on the property insured and the land thereto belonging.

To enable irrigating ditch and canal companies to condemn the right to take water from streams for irrigating purposes.

Authorizing townships of more than 1,000 inhabitants to establish and maintain free libraries and reading rooms.

To prohibit the mortgaging of personal property that is exempt from attachment and levy, except by joint consent of husband and wife.

Providing a penalty for committing waste of mortgaged real property by removing buildings or other improvements therefrom.

Creating the Kansas Soldiers' Home whenever Congress shall have given one of the national military reservations as a site therefor, and making conditional appropriations for the construction of buildings.

Authorizing county officers to pay a bounty of ten dollars an acre for planting and cultivating for five years forest trees.

Appropriating \$14,000 and accrued interest for payment of the note of certain State officers and others given to pay interest on the Quantrell raid scrip, due July 1, 1888, for which the Legislature had made no provision.

Revising the mechanics' lien law.

Charities.—At the Osawatimie Insane Asylum in October, 1889, there were 502 inmates, and at the Topeka Insane Asylum, 773. The Asylum for Idiotic and Imbecile Youth, at Winfield, contained 103 inmates in October; the Asylum for the Blind, at Wyandotte, 93; the Asylum for the Deaf and Dumb, at Olathe, 225; and the Soldiers' Orphans' Home, at Atchison, 108.

The value of the property owned by the State at these institutions is as follows: Osawatimie Asylum, \$421,148.91; Topeka Asylum, \$771,855.65; Asylum for Imbeciles, \$33,190; Asylum for the Blind, \$151,524; Asylum for the Deaf and Dumb, \$174,430; Soldiers' Orphans' Home, \$60,317.33.

In accordance with the legislative act of this year the State Soldiers' Home was established at the old United States military reservation at Fort Dodge. The annual appropriation for its support was fixed at \$5,000. The buildings at the reservation were not repaired and fitted for occupancy till the end of the year.

Prisons.—At the State Penitentiary, on July 30, there were 878 prisoners, of whom 15 were women. The percentage of State convicts is about 1 to every 2,100 of the State population, being the smallest of any State in the Union.

The Reform School, at Topeka, contained, on July 1, 205 boys, and the Industrial School, at Beloit 32 girls. The latter institution, previously conducted as a private charity, was taken in charge by the State, pursuant to an act of the Legislature of this year, which appropriated a

fixed sum for its support and also the sum of \$25,000 to erect a permanent building. The value of the State property at the Reform School is \$152,807.56.

Education.—Since the opening of the State University in 1866, the growth of this institution has been remarkably rapid. The faculty now numbers 33. The enrollment during the past year numbered 505, divided as follows: Post-graduates, 13; special students, 8; collegiate, 110; law, 51; music, 60; art, 38; pharmacy, 42; elementary instruction, 207.

At the State Agricultural College, at Manhattan, at the close of the college year, there was a total enrollment of 445 students, of whom 419 were from fifty-five Kansas counties. Of the whole number, 177 were young women.

At the State Normal School the attendance in the normal department has more than trebled in the past six years. During the past year, the number enrolled in this department was 669, and in the model school 206, making a total of 875.

Railroads.—The past year witnessed very much less activity in railroad building than characterized the three preceding years. On June 30, 1888, there were 8,515.78 miles of main track. The total mileage of main line completed and in operation on June 30, 1889, was 8,755.07, making the amount completed and put into operation between June 30, 1888, and June 30, 1889, 239.29 miles. Of the 106 counties in the State, all have railroads except six—Garfield, Grant, Haskell, Morton, Stanton, and Stevens. For the year ending June 30 the increase of capital stock of all roads in the State over the previous year was \$18,508,200.81, and the increase of bonded indebtedness \$20,093,923. There was a decrease in gross earnings of \$1,477,447 from the figures of 1888. Although the net income for the year was reported to be only \$746,574.32, dividends were paid amounting to \$5,674,131, an excess of \$4,927,556.68 over income.

Industrial Statistics.—The report of the State Bureau of Statistics for 1888 shows that there were 241 mills in the State with a capital of about \$7,000,000. Of these mills, 180 ground 2,670,332 barrels of flour, etc., during the year, using about 14,000,000 bushels of grain at an average cost per bushel of 73½ cents, amounting to \$10,420,000.

The same report shows that 593 industrial establishments in the State have a capital of \$27,000,000, using raw material to the value of \$26,000,000, and paying out for labor the sum of \$7,000,000 to 14,591 employes. The annual product is valued at \$38,000,000. Reports from 25 mines show a capital invested of \$1,194,000. Over 40,000,000 bushels of coal were mined in the State during the year and 5,600 hands were employed. Crawford and Cherokee counties still hold supremacy as the chief coal-producing sections of the State, although from its rapid development the Leavenworth coal field bids fair to become a formidable rival.

According to the returns made to the State Board of Agriculture, the wheat crop for 1889 was 36,219,851 bushels, and the corn crop 276,541,338 bushels.

Prohibition.—The following is an extract from a letter of the Governor, dated April 8:

Kansas adopted prohibition by a constitutional amendment in 1880, and legislation to enforce it passed in 1881.

For several years legislation in aid of the amendment, without precedent or example to guide, was purely experimental. The amended act of 1887 seems such a near approach to what is wanted that the Legislature of 1889, just adjourned, deemed no material changes advisable. During the eight years of trial the opposition to prohibition has expended its force in the effort to secure the election of members committed to the scheme of resubmitting the whole question to the people, but the effort has proved fruitless except to emphasize the growing power of the opposite sentiment.

During the session just adjourned, as I now remember, for the first time since the struggle began in 1881, not a single resolution was offered looking to a resubmission of the question. The law is undoubtedly well enforced.

Deep-Harbor Convention.—In response to a call issued by Gov. Humphrey, a convention of delegates from many of the Western and Southern States assembled at Topeka on Oct. 1, to devise means for securing a deep harbor on the coast of Texas. About six hundred delegates were present, including Gov. Thayer of Nebraska, Gov. Francis of Missouri, seven ex-governors, nine congressmen, and many other people of prominence. Fifteen States and Territories were represented. Senator Plumb, of Kansas, was selected as the permanent chairman. The convention was in session three days, during which the advantages of the proposed harbor were fully set forth. The committee appointed at the Denver convention in 1888 reported that through its efforts an amendment had been added to the appropriation bill passed by Congress early in the year, by which a commission of three expert engineers was appointed to ascertain the most feasible point for a deep harbor. Their report had not then been made public. The committee was continued and a considerable sum was raised to enable it to present to Congress, and secure the passage of a bill authorizing the construction of a harbor at such point as the engineers should favor in their report. The following resolutions were passed by the Convention:

That in reaffirmance of the action of the Denver convention, and of the committees organized thereunder, it is the sense of this convention that it is the duty of Congress to appropriate permanently, and for immediate use, whatever amount is necessary to secure a deep-water port on the northwest coast of the Gulf of Mexico, west of 93½° west longitude, capable of admitting the largest vessels, and at which the best and most accessible harbor can be secured and maintained in the shortest possible time and at least cost; the time, place, and cost to be ascertained from the board of engineers appointed under an act of Congress at its last session.

That this convention, in behalf of the people it represents, thanks the Congress of the United States for the prompt and satisfactory action heretofore taken in recognition of the request of the Denver Deep-Harbor Convention.

Decision.—Late in the year the question was brought before the State Supreme Court in the *Fulker* case, so called, whether the sale of intoxicating liquors in the original packages in which they were imported into the State was forbidden by the prohibitory law. The same question was brought before the Iowa Supreme

Court this year and decided against the liquor sellers. The decision in the *Fulker* case was rendered early in January, 1890. It was held that "intoxicating liquors transported from another State to a point in Kansas are subject to the laws of Kansas relating to the sale and disposition of such property to the same extent and in like manner as are other intoxicating liquors already rightfully existing in the State, and can not be sold at the place of destination in the original packages, or other form, except as the laws of the State prescribe. The police power of the State so exercised does not infringe on power delegated to Congress to regulate commerce between the States."

KENTUCKY, a Southern State, admitted to the Union in 1792; area, 40,400 square miles; population, according to the last decennial census (1880), 1,648,690; capital, Frankfort.

Government.—The following were the State officers during the year: Governor, Simon B. Buckner, Democrat; Lieutenant-Governor, James W. Bryan; Secretary of State, George M. Adams; Auditor, Fayette Hewitt, who resigned Nov. 11 and was succeeded by Insurance Commissioner L. C. Norman by appointment of the Governor; Treasurer, Stephen G. Sharp; Attorney-General, P. W. Hardin; Superintendent of Public Instruction, Joseph D. Pickett; Insurance Commissioner, L. C. Norman, succeeded on Nov. 11 by Henry T. Duncan; Register of the Land Office, Thomas H. Corbett; Railroad Commissioners, J. P. Thompson, A. R. Boone, John D. Young; Chief Justice of the Court of Appeals, William S. Pryor; Associates, William H. Holt, Joseph H. Lewis, Caswell Bennett.

Finances.—The following statement shows the gross revenue receipts and expenditures for the biennial period ending June 30, 1889:

Balance, June 30, 1887	\$197,684 88
Receipts for year ending June 30, 1888.....	3,693,784 36
Total.....	\$3,891,469 24
Expenditures during the year.. \$3,642,194 52	
Add the Tate defalcation..... 247,128 50—	3,889,323 02
Leaving a balance June 30, 1888	\$2,146 22
Receipts during year ending June 30, 1889	4,391,647 14
Total	\$4,393,793 36
Expenditures for the year were.....	4,320,567 12
Balance June 30, 1889	\$72,926 24

These figures include all State funds. The statement of the general fund alone, from which the current expenses of the Government are paid, is as follows:

Balance, June 30, 1887	\$11,938 58
Receipts for year ending June 30, 1888	\$1,775,478 67
Tax of Kentucky Central Railroad	18,119 29—
1,793,597 96	
Total	\$1,805,536 55
Disbursements were.....	2,084,587 98
Deficit	\$279,051 43
Part of Tate defalcation chargeable to this fund	105,161 06
Total deficit in this fund	\$384,212 49
For the year ending June 30, 1889, receipts of the fund were	2,314,292 62
Deducting the deficit.....	\$1,930,080 13
Expenditures for that year	2,157,785 35
Deficit, June 30, 1889.....	\$227,655 22

The defalcation of Treasurer Tate, in 1888, amounted to \$247,128.50. This is distributed among the several funds as follows: General fund, \$105,161.06; school fund, \$115,677.17; sinking fund, \$26,290.27. Proceedings by the Attorney-General, to realize on the funds and property of the defaulting Treasurer, and adjudications by the Special Commission constituted by the Legislature, have resulted in reducing the defalcation by the sum of \$73,033.88, leaving a balance of \$174,094.62.

The annual tax levy is 4.75 mills, of which 2 mills only are for general State expenses, the remainder being devoted to school purposes.

The State debt, on June 30, 1889, amounted to \$674,000, all funded in interest-bearing bonds.

Taxation and Valuations.—"The assessment of Sept. 15, 1888, amounted to \$498,423,606; equalized value, \$501,676,267, being an increase of \$112,242,595 under the new revenue law—that is, over the assessment for 1886. Yet this assessment is only \$68,519,545 greater than that of 1871; in other words, according to the Assessor, the wealth of the State increased in eighteen years less than \$70,000,000, only about 16 per cent. But the population has increased more than 50 per cent., the mileage of railroads has increased more than 300 per cent., banking capital has increased 250 per cent., and mineral resources have been largely developed." Of the entire assessed valuation, about \$100,000,000, or one fifth, is credited to Jefferson County, which includes the city of Louisville.

Charities.—For the fiscal year ending June 30, 1889, the number of lunatics and idiots supported by the State and the expenditures therefor were as follow:

CLASSIFICATION.	Number.	Amount paid.
Lexington Asylum	882	\$112,627 00
Anchorage Asylum	930	183,401 19
Hopkinsville Asylum	701	102,388 85
Supported by State outside of asylums.	185	11,896 99
Cost of conveyance .....	...	12,164 28
Total	2,748	\$377,928 81
Idiots (on pay-roll)	1,418	100,021 88
Total	4,166	\$477,950 19

For the education of defective youth the following sums were paid:

INSTITUTE.	Pupils.	Paid.
Blind	101	\$23,037 67
Deaf and dumb	168	58,152 23
Feeble-minded	146	29,170 69
Total	415	\$115,360 59
Brought down	4,166	477,950 19
Total	4,166	\$593,310 78

This amount is over 13 per cent. of the State's entire revenue. On the estimate of 2,000,000 as the number of inhabitants in the State, it is found that 4,166, the total number of lunatics and idiots, is a slight fraction over 2 out of every 100.

Education.—The per capita expenditure for educational purposes for the fiscal years ending June 30, 1888 and 1889, amounted respectively to \$1.90 and \$2.05, and the aggregate expenditures from the treasury for those purposes was

\$1,248,203.10 for 1888 and \$1,363,209.10 for 1889. For the year ending June 30, 1890, the per capita expenditure was \$2.15, and \$1,455,132.90 was apportioned as follows: To 565,451 white children, \$1,215,719.65; to 111,315 colored children, \$239,413.25. During the fiscal year 1887, of \$165,971.84 expended on schools for colored children, only \$12,545.65 were contributed by colored tax payers. A proportionate contribution has been paid in subsequent years.

Prisons.—At the Frankfort Penitentiary improvements in progress during the year have increased the number of cells to 740, and when the branch Penitentiary is completed there will be 416 additional cells, making together accommodations for 1,158 prisoners. It is estimated that there will be 1,300 prisoners by March 1, 1890, or 142 more than can be accommodated. Considerable difficulty was found during the year in effecting a lease of the prison labor. But one bid was made for the labor of the Frankfort Penitentiary, and the lease effected, which barely relieves the State of the expenses, is much better than the bid that was made. A lease of the branch Penitentiary was also made.

Militia.—The State Guard on Dec. 31, 1886, numbered 1,026 men, and consisted of three regiments of infantry of eight companies each. On Dec. 31, 1888, the number of men was 1,318. No encampment was held in 1888, for lack of funds, but during the summer of 1889 one was held at Grayson Springs and another at Lexington. The amount to the credit of the military fund on Oct. 1, 1887, was \$1,155.16, which has been increased by a portion of the sum collected in the Kentucky war claim, and from other sources, making a total of \$22,236.66. The expenditures chargeable to the fund from Oct. 1, 1887, to Oct. 1, 1889, amounted to \$8,586.99, leaving a balance to the credit of the fund of \$13,649.67, to which should be added another appropriation now due, which will give to the military fund a total of \$23,649.67.

During the biennial period ending Sept. 30, 1889, two detachments of troops were sent to the mountains—the first detachment of seventy men going to Perry County in November, 1888, to protect the circuit court against disorders growing out of what is known as the French-Eversole feud, and the second going to Harlan County, in September, 1889, because of the strife between the Howard and Turner factions.

The disbursements on account of the active militia from Oct. 1, 1887, to Oct. 31, 1889, amounted to \$10,310.80.

Railroads.—There were in operation at the close of the year 2,835 miles of railway, an increase of 232 miles during the year. In addition to these completed roads, 100 miles are under construction and will be in operation within the next few months. The gross earnings of the roads operating in the State amounted during the year to \$14,400,496, the operating expenses to \$8,778,199, and the net earnings to \$5,893,177. The assessed valuation amounted to \$44,690,903. Taxes were paid, however, on only \$34,174,272 valuation, as the residue, amounting to \$10,516,631, is at present exempt from taxation by the terms of the charters.

Coal.—The following table shows the coal product of the State for the past few years.

YEAR.	Tons.	No. of mines.
1870.....	169,120	From entire State.
1880.....	946,288	From entire State.
1880.....	914,000	From 49 collieries.
1884.....	1,550,000	From 76 collieries.
1885.....	1,600,000	From 80 collieries.
1886.....	1,650,000	From 77 collieries.
1887.....	1,933,185	From 86 collieries.
1888.....	2,342,058	From 74 collieries.
Total.....	11,104,651	

For the first six months of 1889 the coal product shows a decrease from the previous six months, being 25,669,403 bushels, or 1,026,776.12 tons from 77 mines.

Immigration.—A convention of representatives from all parts of the State met at Louisville on Sept. 24, to organize a movement in aid of immigration to the State, and more especially to set forth the necessity for a State Immigration Bureau. Gov. Buckner called the convention to order and addressed it in favor of such a bureau. The following resolutions were adopted:

Resolved, That this convention of citizens from every part of Kentucky, in common with the commercial clubs throughout the State, do call upon our Representatives and Senators at Frankfort to establish upon a broad and liberal basis, and with ample means to carry on its work, a State Bureau of Information and Immigration, which shall gather, publish, and disseminate exact information concerning the resources, advantages, and needs of every county and town in the State, and in the name of the State encourage the immigration of desirable people from other States and countries.

Resolved, That a committee of citizens from different sections of the State be appointed by the chairman and charged with the duty of securing from the Legislature the passage of a bill establishing such a Bureau of Information and Immigration.

The only action heretofore taken by the Legislature on this subject has been to appropriate \$700 annually since 1880, to be expended by the Geological Department for immigration purposes. It is claimed that this small outlay has been of great benefit to the State, especially in the settlement of Laurel, Lincoln, Boyle, and Edmonson Counties.

Harlan County Disorders.—Another of the family feuds, so common in the State, developed into open warfare in September, 1889, and required the presence of a military force for its suppression. The feud of the Howard and Turner factions began some five years ago, when Wilson Howard shot and killed one of the Turners in a quarrel. Since that time the Howards have killed three other Turners, the last murder occurring shortly before the August election. Judge Lewis, the county judge, thereupon applied to the Governor for military aid in capturing the offenders, as the sheriff, being himself a Howard, could not be relied upon. The Governor suggested that the judge first try the expedient of summoning a *posse* of one hundred men to capture the outlaws. He followed this suggestion, but only nine men responded. They attacked the Howards, but were defeated, three of the party were killed, and the judge narrowly escaped with his life. The Governor thereupon ordered a detachment of State troops to the aid of Judge Lewis, with which, on Oct. 21, he attacked the Howards near Harlan

Court-House. After a short conflict, the Howards were defeated, six of them being killed or seriously wounded, and Wilson Howard, the leader, was obliged to flee from the county.

Political.—On May 9 a State convention of the Democratic party met at Louisville to nominate a candidate for Treasurer. The unanimous choice was Stephen G. Sharp, the present incumbent of the office, who was appointed by the Governor in 1888 to fill the vacancy caused by the flight of Treasurer Tate. The following are among the resolutions adopted:

That we approve the calling of a constitutional convention.

That we hail with gratification the continued agricultural and industrial development and progress in all parts of our great Commonwealth, and we heartily favor a policy which will attract industrious law-abiding, *bona fide* settlers and also capital to locate among us and to assist in the further material development of the State.

Party organization should be made as thorough as possible and party discipline everywhere enforced. Workingmen should be protected against the oppressions of combinations and monopolies and we favor the passage of such laws as will guarantee to workingmen the most favorable conditions for their labor in the way of proper ventilation and other safeguards for life and health in mines, factories, and railroads and the sure and prompt payment of wages, and also such laws as will facilitate the collection and dissemination of information relating to the interests of labor, and provide for the submission of all questions of dispute between employers and employés under just regulations to impartial arbitration.

The Republican State Convention met at the same place on May 22, and nominated John Z. Barrett. It adopted, among others, the following resolutions:

That we heartily indorse the policy of the present and of foregoing Republican Administrations in justly pensioning those defenders of the Union who became disabled in the discharge of their duty, and the widows and orphans of those who lost their lives in their country's service.

For the following reasons we condemn the management of the Democratic party in Kentucky, continuing throughout their twenty-two years' control of the State government: First, they have unwisely and without necessity sold and given away the public property of the Commonwealth; second, they have squandered the public funds and increased those burdens of taxation which have to be borne by the people; third, they have uniformly failed to provide an adequate system of common-school education for the benefit of the children of the State, whom they have treated with habitual indifference and neglect.

The recent startling defalcation of the State Treasurer emptying the treasury and unprecedented in the history of the Commonwealth, was but the natural consequence of the present long lease of power, loose methods, and reckless neglect of what were the plainest dictates of public duty.

The Republican party of Kentucky indorses the provisions of the educational measure known as the Blair Bill.

We are unqualifiedly in favor of a State convention to amend the existing Constitution of this Commonwealth.

A few days later Mr. Barrett announced that he could not accept the nomination. A second convention was called, which met at Lexington on July 4 and nominated David G. Colson.

The Prohibitionists nominated a candidate named Cobb. At the election, on Aug. 5, Sharp received 147,982 votes; Colson, 114,649; Cobb,

3,351. Members of the State Legislature for 1889-'90 were chosen at the same time as follow: Senators—Republicans, 7; Democrats, 31; Members of the House—Republicans, 14; Democrats, 86. The question whether a convention should be called to revise the State Constitution

was decided at the same election in the affirmative, by a majority of 31,931 votes. An affirmative vote having been obtained at two successive elections, in 1887, and 1889, it now devolves upon the Legislature to make provision for the election of delegates to the convention.

L

LEO XIII, Pope, born in Carpineto, diocese of Anagni, in the former States of the Church, March 2, 1810. His father was Count Louis Pecci; his mother, Anna Prosperi, was the daughter of a noble house at Cori, not far from Carpineto. The Pecci family has been the most considerable in Carpineto since the fifteenth century, when it emigrated thither from Sienna. The names received in baptism by the future pontiff were Joachim Vincent Raphael Aloysius. Owing to the preference of his mother for the second name, he was known by it until he had completed his studies. In 1818 he was sent with his eldest brother, Joseph, now Cardinal Pecci, to the Jesuit college of Viterbo. Some Latin verses that he addressed to one of his preceptors at the age of twelve are published in the collected edition of his poems, and show striking intellectual precocity. After the death of his mother in 1824 he entered the schools of the Roman College, devoted himself with great zeal to the study of natural philosophy, and in 1828 gained the first prizes in chemistry and physics and the first *accessit* in mathematics. He then began his studies in theology, which he finished in the Academy of Noble Ecclesiastics and in the Roman University, winning the chief honors of his classes, and the doctorate in both branches of law, when he was but twenty-one years of age. Meanwhile, Gregory XVI had been quick to discover the fine intellectual qualities of the young man, and, even before his elevation to the priesthood, appointed him Domestic Prelate and Referendary of the Segnatura on March 16, 1837. On the last day of that year he was ordained priest by Cardinal Prince Odescalchi, and said his first mass in the chapel of St. Stanislaus, in Saint Andrea on the Quirinal.

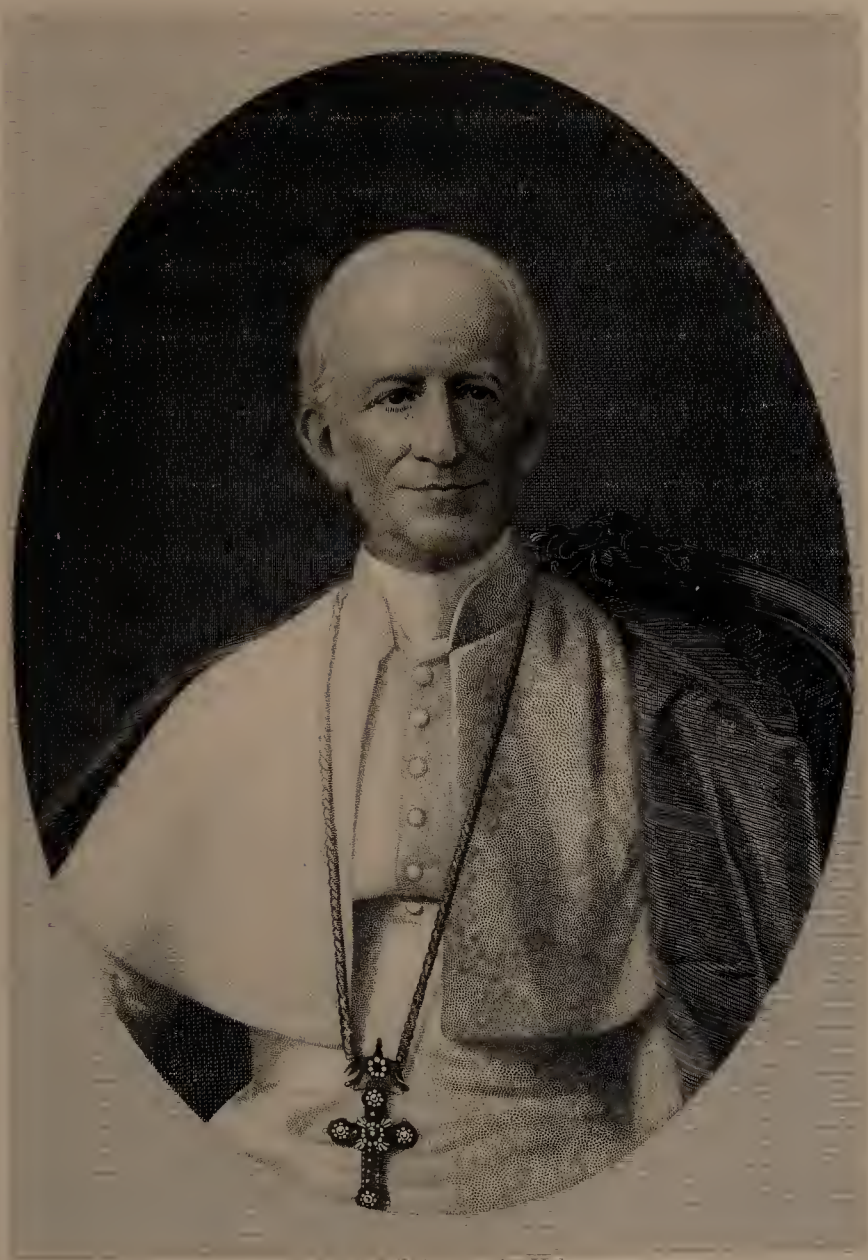
He was then assigned to the governorship of Benevento, with the title of Apostolic Delegate, where he found the people of that province subject to every kind of exaction and oppression at the hands of officials and nobles. His first step was to go among the peasants and learn their grievances. He then scrutinized the accounts of the officials and nobles, and forced them to meet every precise accusation that the peasantry brought against them. They became alarmed, and made serious charges against the Delegate to the Pope, among others "that he was openly siding with the peasantry and exciting them to disrespect and disaffection toward their superiors; that he was a revolutionary ruler, and if he were permitted to continue in the province, Benevento would be forever lost to the Patrimony of Peter." The impeachment was so framed as to give an unfavorable impression of the Delegate's action to a pontiff holding the political views of Gregory, but the latter refused to interfere. The province

was infested by brigands, with whom several of the nobles were in collusion. There are many anecdotes illustrating the energy of Pecci's character during this period. The following is well authenticated: A nobleman whom he had under surveillance came to him one day and expressed his resentment at the indignity put upon him, threatening to bring his complaints before the Pope. "Have you given the matter full consideration?" asked the Delegate. "Certainly," said the marquis. "I do not agree with you," said Pecci. "In these matters too much time can not be given to reflection, and you will therefore favor me by remaining here as my prisoner." The Delegate immediately sent a force of soldiers to seize the castle of the marquis, and during the night the twenty-eight brigands who were under his protection were killed or taken prisoners. Before a year elapsed, under Monsignor Pecci's administration, Benevento was freed from brigandage. The gratitude of the poor people was boundless, and once, when the Delegate fell sick of fever, the churches were thronged by crowds praying for his recovery.

He was transferred to Spoleto in 1841, but before he reached that district he received intelligence that he was appointed to the more important post of Governor of Perugia. The difficulties to be met in his new office were the same, to a great extent, as those encountered in Benevento. But he confronted them with the same inflexible justice and honesty, and was equally successful. Such a change did he effect that the prisons, which were crowded at his arrival, were empty before he left Perugia, and out of a population of 20,000 there was not a single criminal. He dealt with dishonest bakers in a characteristic and somewhat Oriental fashion. Having received a hint that their loaves were under weight, he visited them unexpectedly, had their loaves weighed, and sent such as were short to the market-place, to be distributed among the poor.

Having decided to employ Monsignor Pecci in the diplomatic service of the Holy See, Gregory XVI precognized him titular Archbishop of Damietta, in a consistory held on Jan. 27, 1843, and he received episcopal consecration from Cardinal Lambruschini, Secretary of State, on Feb. 19. He was shortly afterward dispatched as nuncio to Belgium, arrived in Brussels on April 12, and on the 15th was received by King Leopold I. Although the learning and ability of the new ambassador were universally recognized, there were many church dignitaries who doubted his success in diplomacy, owing to a certain air of timidity that had marked his intercourse with his associates. Speaking on this subject, Monsignor Fornari, his predecessor as nuncio and formerly one of his professors, said at the time:





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Leo XII.



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"This apparent defect is compensated by his reflective character and by his prudence, for he will never make a false step." His conduct at the court of Leopold ratified this judgment. His tact in the discussions of diplomatic and literary salons was as recognizable as in his handling of the difficult questions then troubling the relations of the Belgian Government and the Holy See. During his three years' nunciature he visited the cities of the kingdom, the charitable establishments, religious houses, and ecclesiastical colleges, studying much and taking part in all the religious festivals. Later, in his diocese of Perugia, he utilized the knowledge he had acquired in Belgium by introducing into that city the Belgian Brothers of Mercy and the Belgian Sisters of Providence to direct the orphanages that he founded. But the climate of Belgium did not agree with Monsignor Pecci, and when the see of Perugia became vacant Gregory XVI appointed him archbishop, on petition of the inhabitants. He presented his letters of recall on April 18, 1846, to King Leopold, who had become strongly attached to him, and that monarch, by decree of May 1, decorated him with the Grand Cordon of his order. He also gave him a letter for Gregory XVI, recommending Pecci to the protection of the Pope. "He deserves it," the letter says, "from all points of view, for I have seldom met with a sincerer devotion to duty, purer intentions, or more upright actions." The retiring nuncio visited Paris, Marseilles, and other places, and did not return to Rome until May 22. He could not be received by Gregory XVI, who was ill, and who died on June 1. It was Pius IX who answered King Leopold in a letter clearly implying his intention of meeting the Belgian monarch's wishes by raising Monsignor Pecci to the cardinalate at the proper time. He made his solemn entry into his episcopal city on the 26th of July following. During his administration of thirty-two years, he built thirty-six churches, and restored and enlarged many others. He introduced important reforms in educational methods, and proved his partiality for the scholastic philosophy by founding the Scientific Academy of St. Thomas Aquinas. In 1853 he was nominated cardinal-priest, with the title of St. Chrysogonus. In the midst of a busy life he found time to issue pastorals, at frequent intervals, which in many instances are elaborate treatises on questions of the day. In 1861 he wrote two letters to Victor Emmanuel, protesting against civil marriage and the expulsion of the Camaldolese Hermits of Monte Corona. In that year he was summoned before the tribunal of Perugia for suspending three priests who had signed an address against the temporal power, but he made a successful defense. In 1871 the people and clergy of Perugia celebrated the silver jubilee of his episcopate with great pomp. He was nominated Camerlengo of Holy Church in 1877, shortly after issuing his first pastoral on the Church and civilization, the second appearing ten days before his assumption of the tiara. These pastorals, which were subjects of discussion in every European country, even before his elevation to the pontificate, turn principally on the meaning of the word "civilization." "When men," he says, "turn into mockery the word of God and his representative on earth, it is the

dictates of 'civilization' they are obeying. 'Civilization' commands them to curtail the number of churches and priests, and to multiply the houses of sin. It is 'civilization' that requires the establishment of a class of theatres in which modesty and good taste are alike unknown. In the name of 'civilization' the usurer crushes his victim with shameless exactions, and the dishonest trader heaps up his ill-gotten gains, and a filthy press contaminates the mind of its readers, and art prostitutes its powers to promote universal corruption." But if the Archbishop of Perugia condemned a certain civilization which, in his opinion, was another name for decadence, he was far from reproving the elements that go to the making up of true progress. Speaking of science, he says: "How splendid and majestic does man appear when he seizes the thunderbolt and drops it harmlessly upon the ground; when he summons electricity and sends it on the messages of his will over the abysmal bed of the sea, over the steep mountains, across the interminable plains! How glorious when he bids steam fasten pinions to his shoulders and bear him with lightning speed over land and ocean; how powerful when, by his ingenuity, he seizes upon this force, makes it captive, and conveys it by ways marvelously combined and adapted to give motion, we might almost say intelligence, to brute matter, which thus takes man's place and spares him most wearisome toil! Tell me if there is not in man the semblance of a spark of the Creator when he calls upon light and bids it disperse the darkness?"

When Cardinal Pecci became Camerlengo, the nature of his office, which involves the management of the temporalities of the Holy See, obliged him to reside in Rome. Pius IX died on Feb. 7, 1878, and then it became the duty of the Camerlengo to perform other functions attached to his rank; to render the last services, to close the eyes, to prove the death according to ancient formulæ, and to preside at the obsequies of the deceased Pontiff. He had also to make arrangements for the assembling of the Conclave of Cardinals, the closing of their work to the outer world, and the rigid enforcement of the rules prescribed for the occasion. The Conclave assembled on Feb. 18, and when the second ballot was taken it was found that, out of sixty-one votes, Cardinal Pecci had received thirty-eight. A two-third majority was required to elect, and on the following day the third and decisive ballot was cast, resulting in the election of Cardinal Pecci by forty-four votes out of a total of sixty-two. He was at once asked by the Dean of the Sacred College if he would accept the Supreme Pontificate, and replied that he was unworthy of the honor, but, as the Conclave had chosen him, relying on Divine assistance and submitting to God's will, he would do so. When asked what name he would take as Pope, he answered that he would take the name of Leo XIII, in memory of Leo XII, for whom he had a singular veneration.

The election of the new Pontiff was received with satisfaction by all parties in Italy. The supporters of the monarchy hoped for a less inflexible attitude than that of Pius IX, and the conservatives even expected a formal reconciliation between the two powers. Leo had decided

to be crowned before the people in the upper vestibule of St. Peter's, and temporary balconies were erected for the diplomatic corps and other persons of distinction. But on March 1 the workmen received orders not only to discontinue but to undo the preparations. There was much speculation. It was said the Pope had been informed that the party known as the Conciliators had resolved to seize the occasion of the solemn benediction and create a demonstration in favor of a reconciliation with the present order of things. Papal and Italian flags were to have been hoisted at the moment of benediction. There were also rumors of a radical counter-demonstration. Leo XIII was therefore crowned in his own chapel, two days later, being the only pope since 1555, except Pius VII, who had not been crowned in the loggia of St. Peter's. The square in front was thronged by crowds from ten o'clock until late in the afternoon, who hoped that the Pontiff might come out and bless them. The Duke of Aosta, military governor of Rome, had ordered several battalions into the square, with instructions to render him sovereign honors if he appeared on the outer balcony.

The first official act of the new Pontiff was to issue a bull on March 4 reconstituting the hierarchy of Scotland. On the following day he appointed Cardinal Franchi, supposed to be a liberal, Secretary of State, and dispatched him soon afterward to Ireland to investigate the social, moral, and political condition of that island. The Pope's first encyclical, issued on April 21, was a disappointment to those Italians who continued to hope for any important deviation from the policy adhered to by his predecessor. It was devoted to the tendencies of peoples and governments. After describing the impatience of restraint and the perpetual excitements to dissension, resulting in internal strife and cruel and bloody wars, the Pope declares that "a noxious poison has crept into the vitals and members of human society, which allows them no rest, and which forebodes for the social order new revolutions ending in calamitous results." He insists that the cause of these calamities is the rejection of the authority of the Church, the destruction of religious communities, the sale of church property, and the violation of her right to train and educate the young. "Nor," he says, "is any other purpose to be found for the usurpation of the civil principate which Providence conferred, many ages ago, on the Bishop of Rome, to enable him to exercise freely, without let or hindrance, the power given him by Christ for the eternal salvation of the human race." He enumerates the benefits that all nations, and especially Italy, have derived from the civilizing influence of the Holy See, and declares that he will never cease to contend for the full obedience due his authority and the restoration to that condition of things that previously existed. "Hence it is," he says, "that in the fulfillment of our duty, which obliges us to defend the rights of holy Church, we renew and confirm by this letter all the declarations and protestations that our predecessor, Pius IX, issued and reiterated both against the occupation of his civil principality and against the violation of the rights belonging to the Roman Church." He then abjures the rulers of states not to reject at this needful time

the aid offered them by the Church, but to unite themselves still closer to it by the ties of hearty love and reverence. In his letter to Cardinal Vica, who was appointed Secretary after the death of Cardinal Franchi on July 31, he outlined his policy more fully, and the Italian official press saw in it a determination to establish peace with all the powers while isolating Italy. He showed a strong desire to put an end to the conflict that, under the name of Kulturkampf, had for some time existed between the Catholics of Prussia and their government. "You know, Lord Cardinal," he says, "that, with a view of seconding the impulse of our heart, we addressed a word to the powerful Emperor of the illustrious German nation, which, on account of the difficult condition of things created for the Catholics, called for our solicitude in a particular manner. That word, inspired only by the desire of seeing religious peace restored to Germany, was favorably received by the august Emperor, and obtained the happy result of leading to friendly negotiations." This hopeful tone was generally accepted as a sure guarantee that these negotiations were on the eve of producing definite results. The reception given to the letter in Germany and the conciliatory tone of the official organs augured well for a solution of pending questions satisfactory to the Vatican. The successful issue of the Pope's policy in this respect has been accepted as the most signal proof of his ability as a statesman. But if it be remembered that when Pius IX died there was hardly a single European power with which the Holy See was in anything like friendly intercourse, the change wrought by the diplomatic tactics of his successor seems truly wonderful.

The letter in which the Pope opened negotiations with Emperor William of Germany was replied to by Crown Prince Frederick, owing to the German monarch's illness. He said that, while it was not in the power of his Government to solve the ancient difficulty of conflicting principles, it was prepared to adopt all necessary measures to come to a peaceful understanding. But there was apparently at the time no basis for this. The Catholic representatives had declared that there were but two ways of coming to an agreement—an understanding with the Curia as to the boundary lines of state jurisdiction, or a complete separation of church and state on the basis of the United States Constitution. To the former it was objected that it would be going too far on the road to Canossa, and the latter was incompatible with the Prussian form of government. Promises were made by Prince Bismarck in an interview between him and the Papal nuncio, Cardinal Jacobini, at Vienna. But the latter demanded as a guarantee that Prussia should take a step in advance of her promises. In 1880 several modifications of the May laws were introduced, but they were not carried into effect, partly because they did not satisfy the Center, and partly because the Pope did not make any advance proving his gratitude. Gradually the correspondence between Leo and the Prussian Government was resumed. The Pope had as yet yielded nothing. Before the end of 1882 a regularly accredited ambassador was sent to the Vatican, and in the same year the so-called ultimo law gave the Catholics some

relief. But the Government still insisted on the right of controlling ecclesiastical appointments. As Leo remained unyielding on this point, the law was suspended for a considerable period. On June 5, 1883, a still more decided step in modifying the Falk laws was taken, and then the Pope made his first concession. To save its retreat, the Government had asked that priests educated abroad should, on their return, apply for a dispensation from the examination in philosophy, history, and German literature, which the Falk laws exacted in such a case. The Pope now permitted the application, but with the distinct understanding that it did not in any sense imply an acknowledgment of the rights claimed by the state in the matter. After this, negotiations between the Pope and Prince Bismarck were again and again taken up, broken off, renewed, until on May 9, 1886, the Falk laws were virtually repealed. The victory was with the Vatican, although negotiations between the two powers aiming at further advantages for the Catholic Church in Prussia continued till the close of 1889.

The twenty-fifth anniversary in 1880 of the accession of Alexander II afforded the Pope an opportunity of approaching the question of an arrangement between the Holy See and Russia. His congratulations, sent through the inter-nuncio of Vienna, were so favorably received that he decided on writing an autograph letter to the Czar himself. In the course of this he said: "We can not forbear to profit by this opportunity to appeal to your Majesty, beseeching you to bestow your thoughts and attention on the cruel condition of the Catholics belonging to your vast empire. Their state fills us with unceasing pain and anxiety. The deep zeal that moves us, in the discharge of our office of supreme pastor of the Church, to provide for the spiritual needs of these faithful Catholics, should, it seems to us, impel your Majesty to grant to the Catholic Church such liberty as would assuredly create peace, beget fidelity, and bind to your person the trusting hearts of your subjects. Your Majesty's sense of justice and right moves us to hope that we can both bring about an accord to our mutual satisfaction." The visit of two of the Emperor's sons to the Pope, the Archdukes Sergius and Paul, toward the end of the year, had the effect of creating friendly personal relations between the Emperor and the pontiff; but the improvement in the condition of the Polish and Russian Catholics, which the latter hoped to accomplish, was not realized, owing to the murder of Alexander. Negotiations were opened with his successor afterward, and still continue. Some Polish prelates who were banished to Siberia have obtained their liberty, and the two Governments came to an understanding in 1889 which resulted in the appointment of bishops for several vacant dioceses.

While Pope Leo was thus striving successfully to establish friendly relations, or at least a *modus vivendi*, with powerful monarchs, the real secret of his success has been that he understands the spirit of his time better than did his predecessor, and has shaped his policy accordingly. His conflict with Germany taught him that actual power is no longer with princes, but with the people represented in legislatures. He has gone to the

fountain-head of power, with the result of having sovereigns and statesmen come to ask his help. While writing to the Russian Emperor, he was meditating an appeal to the whole Slavic race in favor of reunion with Rome. The tenth centenary of the Slavic apostles, Sts. Cyril and Methodius, occurred in 1880. They were claimed as especially the apostles of the orthodox church. The Pope issued an encyclical on Sept. 23, extending to the universal church the duty of honoring the two saints by a solemn office. He insisted on their life-long obedience to the Holy See, and declared that nothing was nearer his heart than to promote the spiritual and material prosperity of the Slavic race. The encyclical did not succeed in its main purpose, but it produced a remarkable revival of the religious spirit among the Slavic populations of the Austro-Hungarian empire, hitherto supposed to be somewhat lukewarm in their attachment to Rome. The festival was celebrated by them with more enthusiasm even than by the orthodox slaves, and during the remainder of the year, as well as during 1882, numerous pilgrimages of representative slaves went to the Vatican from every part of southeastern Europe to express their gratitude, while the Pope received enthusiastic addresses from all the centers of Slavonic nationality. On July 5, 1881, he established a Slavic hierarchy for Bosnia and Herzegovina, being thus enabled, as he says in the bull of institution, to accomplish what so many of his predecessors had in vain desired.

Pope Leo's intervention in the affairs of the eastern churches in communion with the Roman See, shortly after his accession, was equally successful. His negotiations with the Sultan resulted in the acknowledgment of the Patriarch of Babylon as the civil and religious head of the Chaldean nation, and in the concession to it of full religious liberty. A schism that had broken out in another part of Mesopotamia was closed by the submission of the Bishop of Zachan and his flock, and the Nestorians, who had taken forcible possession of the churches of the Syrian patriarchate, were compelled to submit their claims to the arbitration of the British and French ambassadors, who decided in favor of the Catholics. A movement akin to that of the Old Catholics in Germany had sprung up among the Armenian Catholics of Cilicia, Cyprus, and Egypt, after the definition of Papal infallibility in 1870, and for a time was much more successful. Leo XIII succeeded in winning the leaders of the movement back to the Church, and the Armenian Patriarch Hassun, who had been banished for his attachment to the Roman See, was reinstated, and subsequently created cardinal on Dec. 11, 1880. The Pope founded a special college for Armenian ecclesiastical students in Rome in 1881, and established schools and colleges under the direction of various religious orders, both for Chaldeans and Armenians in Syria and on the frontiers of Persia.

But while Leo XIII has been successful in effecting an amicable understanding with many powerful governments, his relations with the kingdom of Italy are still strained. The accession of a new Pope modified in nothing the respective attitude of the Quirinal and the Vatican. This antagonism revived, for the first time

under the pontificate of Leo XIII, the question of the Pope's departure from Rome on the occasion of the scenes that marked the transfer of the remains of Pius IX to the basilica of St. Laurence on July 13, 1881. The disorders that then took place excited a painful sensation throughout the Catholic world. A mob broke through the procession and assailed it with showers of stones, and the body of the late Pontiff, when crossing the bridge of St. Angelo, narrowly escaped being flung into the Tiber. It was declared by Pope Leo that these disorders were accomplished with the permission or connivance of the Italian Government. The idea of the Pope's departure was then agitated not only in the press but in diplomatic notes. The London "Times" said: "The Roman question is a problem of which the gravity grows each day." But Leo XIII, who had already shown himself one of the most cautious and calculating of statesmen, was not the man to act precipitately, and allowed events to follow their course before he seized the opportune moment.

The Pope exerted all his energies to prevent the suppression of the religious orders in France, but without success. To save the religious interests involved, he looked with favor on a proposal made by some members of the French Government in 1880, that the religious orders should unite in signing a solemn declaration to the effect that they had no part, and would have no part, in political movements, and adhered to no political party. "The Catholic Church," he said, "neither blames nor condemns any form of state constitution. The institutions of the Church herself, deriving their origin from purposes of public utility, can flourish under any government, whether the executive or judiciary power be exercised therein by one or by more." The proposal, however, excited the hostility of a large number of French Catholics, and especially of Catholic journalists, and Leo XIII was severely blamed for what they spoke of as a policy of unwise and fatal conciliation. Although he has not been able to prevent the laicization of the schools and hospitals, the compulsory military service of ecclesiastical students and other measures hampering the action of the French Church, he has remained on moderately friendly terms with the successive governments of the republic, in the face of considerable provocation. In March, 1884, the Italian Government announced its intention, supported by a decision of the Court of Cassation, of taking possession of the property of the Propaganda. As the money to found the colleges belonging to this institution had been contributed by Catholics in every quarter of the globe, the act created great indignation among the Catholic people of every country. The American College was saved by the prompt diplomatic intervention of the Government of the United States. Pope Leo was deeply moved, and, when an official organ of the Vatican declared it had authority to announce that the violent conversion of the possessions of the Propaganda had reopened the question of the departure of the Pope, a world-wide sensation was produced. His policy outside of Italy, however, was as successful in 1884 as it had been in previous years. A diplomatic arrangement with Switzerland put an end to a Kulturkampf

that had lasted for fifteen years, and Belgium, which had for some time been on bad terms with the Holy See, renewed her allegiance and received a Papal nuncio at Brussels.

The dispute between Germany and Spain for the possession of the Caroline Islands was referred to the arbitration of Leo XIII on Sept. 24, 1885. In accepting this mission of pacification, the Pope gave equal satisfaction to the two powers, and served the cause of peace without assuming responsibility. His decision, which was against Germany, was received with as much favor in Berlin as in Madrid, although neither of the governments had actually bound itself to submit to it. The prestige of Leo XIII was enhanced by this incident, and many Catholics looked forward to the re-establishment of the papacy as an international tribunal, as it existed in the middle ages. In September, 1886, he created a hierarchy for the whole of India, raising the Archbishop of Goa to the rank of Patriarch, and appointing seven archbishoprics—of Agra, Bombay, Verapoli, Calcutta, Madras, Pondicherry, and Columbo—with their several suffragan bishops.

The political difficulties of the German Chancellor forced him to ask again the intervention of Leo XIII in 1886. By temporary alliances with different parties hostile to Bismarck's national policy, the Center had forced him to modify his attitude toward Rome; and the Center now opposed the passing of a law that would practically give the Emperor control of the army for several years without the legislature's exercising any power in the matter. The Chancellor appealed to the Pope to exert his influence over the Catholic party in his favor. The reasons he gave for the necessity of enacting the new law were sufficient to gain the consent of the Vatican, and by direction of Leo XIII the Papal secretary, Cardinal Jacobini, wrote on Jan. 3 and 21, 1887, to the Nuncio at Munich requesting him to advise and urge the Center party in the Reichstag to vote for Bismarck's measure to free the army from parliamentary control for seven years. Although the Catholic members showed considerable irritation at this interference of the Pope, a sufficient number voted with the Chancellor to give him a parliamentary majority. While Leo XIII undoubtedly was given reason to expect that a further revision of the May laws would spring from an intervention in German affairs, which many of his supporters considered to exceed his jurisdiction, he must also have been influenced by the strong probability of a war breaking out between France and Germany, should the Septennate have been finally rejected.

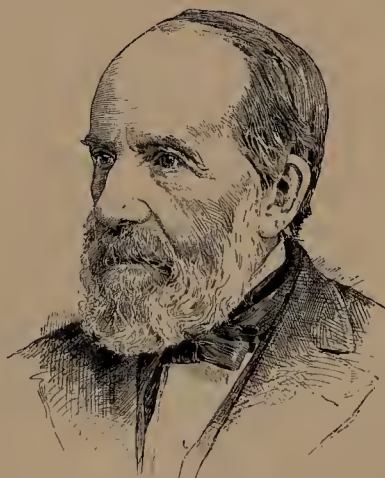
The sacerdotal jubilee of Leo XIII beginning Dec. 31, 1887, the anniversary of his ordination fifty years before, afforded a striking proof of the large place the papacy occupies in the world. From all quarters of the globe deputations pressed to the Vatican, bringing gifts. This demonstration was not confined to Catholic nations or their rulers; congratulations and presents came equally from the Queen of England, the Emperor of Germany, the King of Greece, the Sultan, the Empress of China, the Shah of Persia, the Emperors of Japan and Morocco, and the King of Choa. The Pontiff expressed particular gratification on the reception of a copy

of the Constitution of the United States, sent by the President, and of an ancient Bible adorned with precious stones from the Grand Rabbi of Germany, surnamed the "Pope of the Jews." In an address to the Cardinals, Pope Leo said with emotion: "All the social classes, in all parts of the earth, rival one another in their zeal to load us with every kind of homage—by deputations, by letters, by pilgrimages coming from the most distant countries, and by the sending of an immense quantity of presents, the costliness and artistic value of which, great as they are, are surpassed by the zeal and heartfelt devotion of the givers." The ceremonies during the jubilee were unexampled in splendor. The Vatican Exhibition, opened on Jan. 6, 1888, consisted entirely of the gifts presented to the Pontiff.

But the exigencies of the Triple Alliance, and the necessity of a cordial understanding between Austria and Germany and the Italian Government, neutralized the efforts of Leo XIII to improve the position of the papacy in Rome. The Italian Premier, Francesco Crispi, who succeeded Depretis toward the end of 1887, counteracted the policy of the Pope abroad, and added to the difficulties of his position at home. A penal code which dealt with the clergy with great severity, punishing expressions in favor of the temporal power with long terms of imprisonment, was passed by the Italian legislature in November, 1888. The Pope protested strongly against the law, and early in 1889 the removal of the papacy from Rome was again agitated. The question of the Pope's departure was revived in a more authoritative shape in consequence of a manifestation that outstripped in gravity and significance all those of which Rome had been the theatre since the breach of the porta Pia. This was the inauguration, on June 9, of a monument to Giordano Bruno, the pantheistic philosopher who had been burned in Rome three hundred years before. There could be no misconception of the meaning of the demonstration. "The date we celebrate to-day," said Signor Bovio, a member of Parliament who was the official orator of the occasion, "is equal in importance to that of 313, the date of the Edict of Milan, which inaugurated the official entrance of Christianity on the stage of the world. June 9, 1889, inaugurates the arrival in Rome of the religion of free thought, and for this reason it must be more painful to the heart of the papacy than that of Sept. 20, 1870. The one marked the fall of the temporal power of the Pope; this marks the disappearance of his spiritual authority. This date is the millennium of a new catholicity—the catholicity of free thought." During the day Rome was like a city in a state of siege. The approaches to the Vatican and to the embassies of France and Austria were guarded by troops. For the first time since 1870 the basilica of St. Peter's and the Vatican were closed for two days, and all persons wearing a clerical habit were warned officially not to go out of doors, for fear of provoking the anti-clerical mobs in the streets. It was felt that the Bruno demonstration rendered the Pope's departure more probable than ever. The delegation of Archbishop Satolli, in November, to represent the Pope on the celebration of the

centenary of the creation of the American church and at the opening of the theological department of the Catholic University, which had been definitely and finally established by a brief of Leo XIII addressed to Cardinal Gibbons and the American bishops on March 7; the numerous pilgrimages from the old and new world to the Vatican, the most important being that of over 12,000 working-men representing working-men's clubs in all parts of France; and an increasing bitterness in the relations between Pope and king—marked the close of 1889. The accompanying steel-plate portrait is from a photograph furnished by the Pope himself to Messrs. Charles L. Webster & Co., publishers of his biography, and is used here by their permission. See "Life of Leo XIII, from an Authentic Memoir furnished by his Order," by Bernard O'Reilly, D. D., LL. D. (New York, 1887); "Life of Leo XIII," by John Oldcastle (London and New York, 1888); "Il pensiero intimo di S. S. Leone XIII, confidato al presunto suo successore" (Rome, 1887); "Rome et le jubilé de Leon XIII, notes d'un Pèlerin par J. Cornély" (Paris, 1888); and "Il Conclave di Leone XIII e il futuro Conclave" (Citta di Castello, 1888).

LESQUEREUX, LEO, palæontologist, born in Fleurier, Switzerland, Nov. 18, 1806; died in Columbus, Ohio, Oct. 25, 1889. He was intended for the Church by his mother, but in 1821, on



LEO LESQUEREUX.

entering the academy at Neuchatel, he met Arnold Guyot, and the influence of Louis Agassiz led him to devote himself to natural science. On completing his course at the academy in 1827, he went to Eisenach in Saxe-Weimar in order to prepare himself, by acquiring a better knowledge of the German language, to enter the University of Berlin. There he married Baroness Sophia von Wolffskeel, and had as his best man Lieut. (now Field Marshal) von Moltke. He returned to Switzerland and in 1829-'34 was principal of the college at Chaux de Fonds, but, becoming totally deaf, he retired from this place and until 1848 worked at engraving and also made watch-springs. Meanwhile he had begun the study of mosses and of fossil botany, becoming interested in the subject of peat, its production and possible reproduction. His knowledge of this subject led to his being appointed by the

government of Neuchatel to examine the peat-bogs of that canton, and later, under the patronage of the King of Prussia, he explored the peat-bogs of Germany, Sweden, Denmark, Holland, and France. His researches were recognized by a gold medal, which was awarded to him in 1844 by the authorities in Neuchatel for the best popular treatise on the formation of peat. In 1848 the canton of Neuchatel revolted against the Prussian administration and entered the Swiss republic. At that time Lesquereux came to the United States and settled in Cambridge, where he assisted Louis Agassiz, but in the same year removed to Columbus, Ohio, where he remained until his death. He became associated with William S. Sullivant in the study of American bryology, and together they published "*Musei Americani Exsiccati*" (1856; 2d ed., 1865). Subsequently he assisted Mr. Sullivant in the examination of the mosses that had been collected by Capt. Charles Wilkes on the South Pacific exploring expedition, and by Lieut. W. Whipple on the Pacific Railroad exploration, and finally in Mr. Sullivant's "*Icones Muscorum*" (Cambridge, 1864). His own most valuable investigations, beginning in 1850, were studies of the coal-formations of Ohio, Pennsylvania, Illinois, Kentucky, and Arkansas, on which he contributed memoirs to the reports of the geological surveys of the States mentioned. Of special value were his investigations on the coal flora of Pennsylvania, and as an authority on fossil botany he stood foremost in the United States. He prepared a "Catalogue of the Fossil Plants which have been named or described from the Coal Measures of North America" for the reports of Henry D. Rogers, State geologist of Pennsylvania, in 1858, and in 1884 furnished "*The Coal Flora*" (three volumes of text with an atlas) for the second geological survey of Pennsylvania, which is regarded as the best work on carboniferous plants that has thus far appeared in the United States. Since 1868 parts of the material in fossil botany have been referred to him by the various national surveys in the field, and he has contributed to their reports the results of his investigations. Notably, as assistant under Ferdinand V. Hayden, he pursued explorations in New Mexico, Colorado, Utah, and elsewhere in the West, and contributed "*The Cretaceous Flora*" (Washington, 1874), "*The Tertiary Flora*" (1878), and "*The Cretaceous and Tertiary Floras*" (1883), to the quarto volumes published by the survey. He was a member of more than twenty scientific societies in the United States and Europe. In 1864 he was chosen to the National Academy of Sciences, and in 1888 succeeded Asa Gray as foreign member of the Geological Society of London. The titles of his scientific memoirs exceeded fifty in number, and included twelve important volumes on the natural history of the United States. He published in Neuchatel a series of letters written from Germany and later a series from the United States (1846-'55). He also published with Thomas P. James "*Manual of the Mosses of North America*" (Boston, 1884).

LITERATURE, AMERICAN, IN 1889. Book production decreased largely during this year; the figures of the "Publishers' Weekly" show a total of 4,014 volumes, against 4,631 in

1888—the largest year known with the exception of 1886. The only departments in which increase was to be observed were fiction (covering nearly one fourth of the whole), the law, and physical and mathematical science, and, in a remarkable degree, that of mental and moral philosophy. In history, in travel and description, in biography, and in political and social science there was a decided falling away, which became more strongly marked in the fine arts, in poetry, and in literary miscellany.

Fiction.—No novel of 1889 attained special prominence, though there was the usual representation of standard authors. Constance Fenimore Woolson's latest was "*Jupiter Lights*"; F. Marion Crawford published "*Greifenstein*," a German romance, and "*Sant' Ilario*," a continuation of his former "*Saracinesca*"; and Ellen Olney Kirk, "*A Daughter of Eve*." "*The Pretty Sister of José*" is a Spanish tale by Frances Hodgson Burnett, who also published "*Vagabondia*," an earlier effort, originally entitled "*Dolly*." From Sidney Luska (Henry Harland) we have "*A Latin Quarter Courtship*," vivacious and innocent, and "*Grandison Mather*," a story of every-day life. "*The Truth about Clement Ker*," by George Fleming (Julia Fletcher) did not fall below the level of her "*Kismet*." Edgar Fawcett was responsible for "*A Demoralizing Marriage*" and "*Miriam Balestier*." Bret Harte published "*Cressy*" and "*The Heritage of Dedlow Marsh, and other Tales*"; Frank R. Stockton, "*The Great War Syndicate*," satirical and humorous; and Amelia E. Barr, "*Feet of Clay*." George W. Cable was at home in "*Strange True Stories of Louisiana*," records of early French and Creole life, and "*Far in the Forest*," by S. Weir Mitchell, was a tale of pioneer life in northern Pennsylvania. Rose Terry Cooke's "*Steadfast*," the story of a saint and a sinner, belonged to the early days of New England and the times of the Church Consecration Act. From Hjalmar Hjorth Boyesen came "*The Light of her Countenance*" and "*Vagabond Tales*," seven novelettes. "*The Master of Ballantrae*," by Robert Louis Stevenson, was a strong story of family wrong and hate, giving occasion for some of the finest ethical effects. "*The Story of Hapinoland and other Legends*," by Oliver B. Bunce, conveyed moral truths in a happy and suggestive form. Other collections were "*A Family Tree and other Stories*," by Brander Matthews; "*Gerald French's Friends*," by George H. Jessop; and "*Heart Stories*," by Theodore Bartlett. "*An Author's Love*," attributed to Elizabeth Balch, purported to be "*Unpublished Letters of Prosper Mérimée's 'Inconnue'*," and "*Passe Rose*," by Arthur Sherburne Hardy, was a successful realistic effort in depicting the times of Charlemagne. William Waldorf Astor published his second novel, "*Sforza; a Story of Milan*." Charles Dudley Warner, in "*A Little Journey in the World*," charms with his subtle and spiritual analysis, while he saddens by the truthfulness of the conditions portrayed. "*American Coin*," by the author of "*Aristocracy*," satirizes American society; "*The Aspen Shade*," by Mabel Louise Fuller, dealt with its votaries; and from Henry James we have "*A London Life*," "*The Patagonia*," "*The Liar*," and "*Mrs. Temperly*," four characteristic tales in a single vol-

ume. "A Hazard of New Fortunes," by William D. Howells, brought old friends upon the scene. "With Gauge & Swallow, Attorneys," was from the pen of Albion W. Tourgée. "A Modern Mephistopheles," by Louisa M. Alcott, published twelve years ago in the No-Name Series, appeared with the author's name, accompanied by "A Whisper in the Dark." A striking novel, long out of print, was revived in "The Morgesons," by Elizabeth Stoddard, and a new holiday edition, illustrated, was issued of Nathaniel Hawthorne's "Marble Faun." Julian Hawthorne wrote "Constance" and "Calbot's Rival," which together form No. 23 of the "Town and Country Library," of which No. 21 was "Raleigh Westgate, or Epimenides in Maine," by Helen Kendrick Johnson. "Far Away and Long Ago" came from Frances Anne Kemble at the age of eighty years, being a story of New England life. Blanche Willis Howard, author of "One Summer," appeared in "The Open Door." "Divorce, or Faithful and Unfaithful," by Margaret Lee (first published in 1883 as "Divorce"), was brought out in England under the former title, with a review by Mr. Gladstone, and was subsequently reproduced in the United States. "Burkett's Lock" was a dialect story by M. G. McClelland, and from Joel Chandler Harris we have "Daddy Jake the Runaway, and Short Stories told after Dark." "Two Runaways, and other Stories" by H. Stillwell Edwards, were collected from magazines, and deal with plantation life in Georgia before the war, as do "Ogeechee Cross-Firings," by Richard M. Johnston. "Chita, a Memory of Last Island," is a poetic story of the Gulf Coast, by Lafcadio Hearn, and "Chata and Chinita," a story of Mexico, by Louise Palmer Haven. Kate Douglas Wiggin wrote "A Summer in a Cañon," a California story; and Patience Stapleton, "Kady," a heroine of the Rocky mountains; Kate Tannatt Woods, "A Fair Maid of Marblehead" and "Hester Hepworth"; Kirk Munroe, "Dorymates, a Tale of the Fishing Banks" and "The Golden Days of '49"; and Josephine W. Bates, "A Nameless Wrestler." "Last Chance Junction" was by Sally Pratt McLean, author of "Cape Cod Folks," and "Fifty Years on the Trail," by Harrington O'Reilly, claimed to be a true story of Western life. "The Last Assembly Ball" and "The Fate of a Voice," form a volume by Mary Hallock Foote. "A Quaker Girl of Nantucket" was a bright book by Mary Catherine Lee, and "Three Days" at a fashionable sea-side resort were told by S. W. Cooper. To Capt. Charles King belong "Between the Lines" and "Laramie, or the Queen of Bedlam," a story of the Sioux war. Edgar Saltus, who was at his worst in "The Pace that kills," also published "A Transaction in Hearts" and "A Transient Guest." "A Woodland Wooing" was from the pen of Eleanor, the late Mrs. Arlo Bates. George Tieknor Curtis acknowledged himself the "Peter Boylston" who wrote "John Charaxes." "The Black Ball" was a fantastic romance by Ernest DeLancey Pierson. Opie P. Read wrote "Up Terrapin River" and "Mrs. Annie Green." "The Romance of Dollard" was a Canadian story by Mary Hartwell Catherwood. Jane G. Austin wrote "Standish of Standish"; Louise Vescelius Sheldon, "An I. D. B. in South

Africa," where that lady is always at home; and Admiral David D. Porter, "Arthur Merton." Lydia Hoyt Farmer appeared with "A Knight of Faith," and "Marigold," by Mrs. N. Conklin, portrayed New England life. "Cathedral Stories," by Mary E. Waller, were "Giotto's Sheep" and "The Rose Bush of Hildesheim." "Metzerotti: Shoemaker," anonymous, was a socialistic novel with an ethical purpose, while Lucia Truc Ames wrote "Memoirs of a Millionaire," with somewhat of the same intent, and "Our Pariahs," by Uncle Tim, discussed vital questions of humanity. "Mito Yashiki," a tale of old Japan, by Arthur Collins Maclay, "A Swallow's Wing, a tale of Pekin," by C. Hannan, and "In the Time of the Cherry Viewing," an episode in Japan, by Margaret Peale, may be classed together. "Kibboo Ganey," or "The Lost Chief of the Copper Mountains," is a story of adventure in the heart of Africa, by Walter Wentworth. "The Lost Inca," by Inca Pancho Ozollo, resembles in some sort the "Looking Backward" of Edward Bellamy, which attained a marvelous popularity during the year. Stories of Southern life were "Osborne of Arrochar," by Amanda M. Douglas; "In the Wire Grass" by L. Pendleton; "The Huguenot Lovers, a tale of the Old Dominion," by C. P. E. Burgwyn; "White Marie, a Story of Georgian Plantation Life," by W. N. Harben; "Wheat and Tares," by Graham Claytor; "Etowah," a romance of the Confederacy, by Francis Fontaine; "Baldy's Point, by Mrs. J. H. Walworth, who wrote also "A Splendid Egotist" and "Raleigh Rivers, a Tale of the New South," by O. O'B. Strayer. "A Blue-Grass Thoroughbred," by Tom Johnson, is suggestive of the turf. "Two Coronets," by Mary A. Tincker, "Frederiek Struther's Romance," by A. Ulmann, "Guy Ormsby," by Marian C. Wilson, "The Old Settler and his Tales of Sugar Swamp," by E. Mott, "Storm Mountain," by E. S. Ellis, "Cleopatra's Daughter," by W. Armstrong, "One Voyage and its Consequences," by Julius A. Palmer, "Janus," a study of the twofold artistic temperament, by E. I. Stevenson, "Uncle Ned's White Child," by Mary E. Bryan, "Assemblyman John, or his Wife's Ambition," by Mrs. E. W. McCarthy, and "Gold that did not Glitter," by Virginus Dabney, offer no special features. "Opening the Oyster," by C. L. Marsh, "Luck in Disguise," by W. J. Yexter, "The Man from the West," by "a Wall-Street Man, and "The Bursting of a Boom," by F. R. Sanford, were tales of the West. "Sounding Brass," by Hubert G. Dick, and "A Social Diplomat," by Flora A. Darling, may be classed together. "A Girl Graduate," by Celia Parker Woolley, dealt with one of the difficulties of American social life. Robert Howe Fletcher published "A Blind Bargain," and W. H. H. Murray wrote three volumes of "Adirondack Tales." "The Loss of the Swansea," by William L. Alden, was a story of the Florida coast. "The Romance of an Odd Young Man," was by Robert Tinsol. Books more or less religious in tone were "An Honest Hypocrite," by E. Staats de Grote Tompkins; "The Sphinx in Aubrey Parish," by N. H. Chamberlain; "A Damsel of the Eighteenth Century, or Cicely's Choice," by Mary H. Norris; "Counting the Cost, or a Summer at Chautauqua," by Cornelia Adèle Teal;

and "Rose and Thorn," by Katharine Lee Bates. "From over the Border," by B. G. Smith, and "The Discovered Country," by Ernest Von Himmelf, resemble in a measure Mrs. Oliphant's "Stories of the Seen and Unseen." Psychical books were "Run Down," by G. D. Cox; "A Hopeless Case," the title of which was changed in a second edition to "Circumstances beyond Control," by Luther H. Bickford; "Earth-Born," by Spirito Gentil; "To bear Witness," a story of Christian Science, by Cecil McClair; "The Romance of an Alter Ego," by Lloyd S. Bryce; and "A Philosopher in Love and in Uniform," by W. J. Arkell and A. T. Worden, authors of "Napoleon Smith." C. E. Barns wrote "A Portrait in Crinons," "A Venetian Study in Black and White," and "A Disillusioned Oculist"; George Parsons Lathrop, "Would you kill him?" and "Two Sides of a Story," a collection of eight tales. "Couldn't say No" was by John Habberton, and "The Pretty Stenographer" by Horace Gayman. Allen Dale (J. Alfred Cohen) regaled his admirers with "An Eerie he and she" and "A Marriage below Zero." "Fatima, a Dream of Passion," was apparently a parody on the unhealthy type of novel of which "Hermia Suydam," by Gertrude Franklin Atherton, and "That Pretty Young Girl," by Laura Jean Libbey, are specimens. Detective literature was enriched by "The Prairie Detective," the "Society Detective," and the "Mountaineer Detective," from L. P. Richardson, Oscar Maitland, and Clayton W. Cobb; "Under His Thumb, or the Rival Detective Clews," by Donald J. McKenzie; and "Sergeant Von, or a Long Chase."

Juvenile Books.—Of late years these have assumed a place of their own in literature. "Just Sixteen," by Susan Coolidge (Sarah C. Woolsey) is a collection of short stories, and "Lulu's Library," by Louisa M. Alcott, Vol. III, contains "Recollections of my Childhood," written shortly before her death. "Betty Leicester" is by Sarah Orne Jewett; "The Kingdom of Coins," by J. Bradley Gilman; "Lotus Bay, a Summer on Cape Cod," by Laura D. Nichols; "The Red Mountain of Aaska" and "Cloud and Cliff," by Willis Boyd Allen; "City Boys in the Woods," by H. P. Welles; "Chrissy's Endeavor," by "Pansy" (Mrs. I. M. Alden). Stories for the "King's Daughters" were: "Witch Winnie," by Elizabeth W. Champney; "The Whatsoever Ten," by Minnie E. Kenney; and "All Glorious within," by Jennie M. Bingham. A few that deserve special mention were: "The Story of Patsy," by Kate Douglas Wiggin; "Jed, A Boy's Adventures in the Army of 1861-'65," by Warren Lee Goss; "The Drummer-Boy of the Rappahannock" and "Up North in a Whaler," by the Rev. E. A. Rand; "True to his Colors," by C. A. Fosdick; "Within the Enemy's Lines," by Oliver Optic; "The Adventures of David Vane and David Crane," by J. T. Trowbridge; "Fishin' Jimmy," by Annie Trumbull Slosson; and "Sam Lovel's Camps, Uncle 'Lisha's Friends under Bark and Canvas," by Rowland E. Robinson; "The Fate of the Innocents, a Romance of the Crusades," by Margaret E. Winslow; "Flipwing, the Spy," by Lily F. Wesselhoeft; "The Princess Liliwinkins," by Henrietta C. Wright; "Plucky Smalls," by Mary Bradford Crowninshield; and "Maggie Bradford's Club," by Joanna H. Mathews.

History.—There were important contributions to American history. Henry Adams wrote "A History of the United States of America during the First Administration of Thomas Jefferson"; John Fiske, "The Beginnings of New England" and "The War of Independence"; George Ticknor Curtis, a "Constitutional History of the United States," Vol. I, which was published thirty years ago under another title; and the "United States, its History and Constitution," by the late Alexander Johnston, also formerly published, as an article of the "Encyclopædia Britannica," appeared in book form. "Essays in the Constitutional History of the United States in the Formative Period, 1775-1789," by graduates and former members of Johns Hopkins University, were edited by J. F. Jameson, and Prof. G. E. Howard, of Nebraska University, published Vol. I of "An Introduction to the Local Constitutional History of the United States." "The Origin and Growth of the English Constitution," by Hannis Taylor, in two volumes, one of which was published, attempts to trace the gradual development of the English constitutional system, and the growth out of that system of our federal republic. "The Birth of the Republic" was a compilation by Daniel R. Goodloe. Vol. IV of James Schouler's "History of the United States under the Constitution" covered the period between 1831 and 1847. W. J. Cocker wrote "The Government of the United States;" F. N. Thorpe, "The Government of the People of the United States;" and Francis F. Furey "An Explanation of the Constitution of the United States," for use in Catholic schools. A series of lectures by J. S. Landon was entitled "Constitutional History and Government of the United States," and H. L. Carson edited a "History of the One Hundredth Anniversary of the Promulgation of the Constitution of the United States." "New Materials for the History of the American Revolution" were translated from documents in the French archives, and edited by John Durand. The "Problem of the Northmen" was pursued by Eben N. Horsford, in a letter to Hon. Charles P. Daly, President of the American Geographical Society, and the "Narrative and Critical History of America," by Justin Winsor, was completed in Vols. VII and VIII. Of a general type were: "A First Book in American History," by Edward Eggleston; "A Higher History of the United States," for schools and academies, by H. E. Chambers; "The Story of America," by Mrs. E. W. Peattie; and "A History of the United States for Young Americans," by L. E. Jones. "A Popular History of the United States," by J. C. Ridpath, was revised and brought down to 1889. In European history we have: "The Reconstruction of Europe," by Harold Murdock, with an introduction by John Fiske; "The Three Germanys," by Theodore S. Fay; "The Swedish Revolution under Gustavus Vasa," by Paul Barron Watson, said to be the first history in English of that revolution; "The Viking Age," by Paul Du Chaillu, advancing a new theory as to the ancestors of the English-speaking nations; "The Leading Facts of French History," by D. H. Montgomery; "Constitutional Government in Spain," by J. L. M. Curry, late United States Minister to that country; and "The Federal

Government of Switzerland," by Bernard Moses, purporting to be an essay on the Constitution. In this connection may also be classed "Federal Government in Canada," by J. G. Bourinot. "Political History since 1815," excluding the United States, was a syllabus of lectures prepared for use in the Massachusetts Institute of Technology by C. H. Levermore and D. R. Dewey. In "The Story of the Nation Series," "The Story of Mexico" is by Susan Hale; "The Hansa Towns," by Helen Zimmern; and "The Story of Early Britain," by Alfred J. Church. From the Chautauqua press came "An Outline History of Rome," by J. H. Vincent, and J. R. Joy and Lydia Hoyt Farmer wrote "A Short History of the French Revolution." The "History of France," by Victor Duruy, was abridged and translated by Mrs. M. Carey and J. F. Jameson. To war history belong "Pictorial Battles of the Civil War" and "A Naval History of the Civil War," by Admiral David D. Porter; "Redeeming the Republic," by Charles Carleton Coffin; "Battlefields of '61," by Willis J. Abbot; J. B. Turchin's "Chickamauga;" The Honors of the Empire State in the War of the Rebellion," by Thomas S. Townsend; "Vermont in the Civil War," by G. G. Benedict; Vol. II of "Sketches of War History, 1861-1865," published by the Ohio Commandery of Military Order of the Loyal Legion; Richard B. Irvin's "History of the Nineteenth Army Corps"; a "History of the Ninth Regiment," by G. A. Hussey and William Todd; and "Regimental Losses in the American Civil War," by William F. Fox, Lieutenant-Colonel U. S. V. A new edition was also issued of "A Short History of the War of Secession," by Rossiter Johnson. "The Story of the American Soldier" was told by Elbridge S. Brooks, and S. A. Drake furnished "Burgoyne's Invasion of 1777" in the series of "Decisive Events in American History." "The Battle of the Big Hole" was described by G. O. Shields. "The Battles and Leaders of the Civil War" was completed in four volumes. Of the "History of the Pacific States," by Hubert Howe Bancroft, Vols. XI, "Texas, 1800-1809," XII, "Arizona and New Mexico, 1530-1888," XXI, "Utah, 1540-1886," and, XXV, "Oregon, 1848-1888," were issued. "The Winning of the West" was published by Theodore Roosevelt. Eli Thayer wrote "A History of the Kansas Crusade," and "Indian Depredations in Texas" were recorded by J. W. Wilbarger. "The State and Local Government of New York," by Orlando Leach, was an appendix to "Our Republic." Vol. I of "Illinois, Historical and Statistical," by Arthur J. Moses, was published, as also "A History of New Hampshire," by J. N. McClintock; "North Carolina, 1780-'81," by David Schenck; and "First Steps in North Carolina History," by Cornelia P. Spencer. In "The Story of the States Series," "The Story of Louisiana" was by Maurice Thompson, and that of Vermont by J. L. Heaton. The Massachusetts Historical Society issued Vol. III of its "Collections," being the sixth series, and Herbert B. Adams reported the proceedings of the American Historical Association in Washington, D. C., Dec., 26-28, 1888. Joseph B. Walker supplied a "History of the New Hampshire Convention for the Investigation, Discussion, and Decision of the Federal Constitution."

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To the "Johns Hopkins University Studies" belong: "The River Towns of Connecticut, Wethersfield, Hartford, and Windsor," by C. M. Andrews; a "Municipal History of New Orleans," by W. W. Howe; and "The Establishment of Municipal Government in San Francisco," by Bernard Moses. "The History of Fairfield, Fairfield County, Conn.," was written by Mrs. E. H. Schenck, and that of Woodstock, Vt., by H. S. Dana. "The Story of Washington," in "The Great Cities of the Republic Series," was from Charles B. Todd, and "The Story of Boston" by Arthur Gilman. J. S. Ogilvie was the author of a "History of the Great Flood of Johnstown, Pa." Elijah M. Haines wrote "The American Indian"; J. McLean (Robin Rustler), "The Indians"; and "The Seminole Indians of Florida" was an extract from the "Fifth Annual Report of the United States Bureau of Ethnology." G. T. Bettany's "Teeming Millions of the East" was a popular work, as was Mrs. A. H. Leonowens's "Our Asiatic Cousins." The Constitution of the Empire of Japan was published with addresses delivered at a meeting commemorative of its promulgation at the Johns Hopkins University.

Biography.—"The Writings of George Washington," edited by Worthington C. Ford in fourteen volumes, four of which appeared during the year, with a collection of unpublished agricultural and personal letters of the Father of his Country edited by Moncure D. Conway, under the title of "George Washington and Mount Vernon," and published by the Long Island Historical Society, bring that "grandest character that ever was placed in the forefront of a nation's life" more palpably and practically before us, and were appropriate to the centennial year of his inauguration. Two volumes by Henry Cabot Lodge bore also the title of "George Washington," and "George Washington, a Historical Biography," for the young, was from the pen of Horace E. Scudder. W. S. Baker, in "Bibliotheca Washingtoniana," furnished a descriptive list of the biographies and biographical sketches of George Washington. "An Essay on the Autographic Collections of the Signers of the Declaration of Independence and the Constitution" was revised and enlarged by Lyman C. Draper from Vol. X of the "Collections of the Wisconsin Historical Society," and Benson J. Lossing published "Hours with the Living Men and Women of the Revolution." To this period also belongs "A Life of General Lafayette, with a Critical Estimate of the Character and Public Acts of that Hero," by Bayard Tuckerman, and "Benjamin Franklin," by John T. Morse, Jr. Vol. II of the sixth series of the Collections of the Massachusetts Historical Society was "The Letter-Book of Samuel Sewall." George S. Merriam published a life of William and Lucy Smith, with heliotype portrait of William Smith. "The True Story of a Great Life: the History and Personal Recollections of Abraham Lincoln," was written by W. H. Herndon, his former law partner, assisted by J. W. Weik. "William Lloyd Garrison, 1805-1879," the story of his life told by his children, Wendell Phillips Garrison and Francis Jackson Garrison, is in large part autobiographical, and fills four volumes. "Martin Van Buren, to the End of his Public Career," completed twenty-seven years ago by George Ban-

croft, was given to the public in 1889. William O. Stoddard contributed "Rutherford B. Hayes," "James A. Garfield," and "Chester A. Arthur," to the "Lives of the Presidents Series," and Oliver Dyer wrote "Great Senators of the United States Forty Years ago." "James Nelson Burnes, Late Representative from Missouri," was from the pen of E. W. De Knight. To literary biography belong "The Correspondence of John Lothrop Motley," edited by George W. Curtis, in two volumes; "Emerson in Concord," a memoir by E. W. Emerson, intended for the "Social Circle"; "A Life of Harriet Beecher Stowe," compiled by her son Charles Edward Stowe, and approved by herself, Sept. 30, 1889, as "the true story of my life"; and "The Life-Work of the Author of 'Uncle Tom's Cabin,'" a somewhat superfluous effort by Florine Thayer McCray. "Louisa May Alcott, her Life, Letters, and Journals," by Ednah D. Cheney, was welcomed in many households. Lucy Larcom wrote "A New England Girlhood outlined from Memory." "Glimpses of Fifty Years," by Frances E. Willard was "The Autobiography of an American Woman." "Letters, Poems, and Selected Prose Writings of David Gray," edited with a memoir by J. N. Larned, tell the story of a poet and journalist of Buffalo, N. Y., who must not be confounded with the Scottish poet David Gray. From John Bigelow we have "Emanuel Swedenborg"; from Elliot Graeme, "Beethoven"; and from Charles De Kay, "The Life and Work of Antoine Louis Barye, Sculptor." "Edwin Forrest, the Actor and the Man," was by Gabriel Harrison, and "Audubon's Adventures, or Life in the Woods," was written by B. K. Pierce for young readers. "Memories of Fifty Years," by J. Lester Wallack, was published with an introduction by Lawrence Hutton. "Recollections of Mississippi and the Mississippians" were recorded by Reuben Davis. Works of a general character were: "Famous Men of Science," by Sarah K. Bolton, and Laura C. Holloway's "The Woman's Story, as told by Twenty American Women." "A Woman's War Record" was from the pen of Septima M. Collis, and "Extracts from the Journal of Elizabeth Drinker, 1759-1807," were edited by H. D. Biddle. "Haliburton, the Man and the Writer," was by F. B. Crofton. "Jonathan Edwards," by Alexander V. G. Allen, was the first of "American Religious Leaders," "Wilbur Fisk" following, by George Prentice. "A Servant of the King," by Anna Warner, was the first title of "Incidents in the Life of the Rev. George Ainslie." J. A. Roche furnished a "Life of John Price Durbin," the famous Kentucky revivalist, and Rufus M. Jones "Eli and Sibyl Jones," the story of the missionary Friends. "Personal Recollections of Pardee Butler," with reminiscences by his daughter, Rosetta B. Hastings, deals with incidents of early Kansas history, while the "Diary of Philip Hone," edited with an introduction by Bayard Tuckerman, is that of a public-spirited New York citizen of the last generation. J. J. McGovern wrote the "Life of Right Rev. John McMullen, D. D.," and "Hosca Ballou," by Oscar F. Safford, "Asa Turner," by G. F. Magoun, and "Life and Services of J. D. Philbrick," by various writers, may be classed together, with "The Sunday-School Man of the South, Rev. J.

McCullagh," by his son, Rev. Joseph H. McCullagh. "A Professional Biography of Moncure Robinson, Civil Engineer," was written by R. B. Osborne. "Great Leaders, Historic Portraits from the Great Historians," compiled by George T. Ferris; "Great Captains," the theme of six lectures by Col. T. A. Dodge, U. S. A.; "The Conquerors of the World," by G. T. Bettany; "Living Leaders of the World," ninety-nine biographies by Gen. Lew Wallace, James Parton, Mrs. Frank Leslie, Hon. S. S. Cox, and others; and "The Heroes of the Crusades," by Amanda M. Douglas, belong to general biography, the list being fitly closed by the "Everyday Biography" of Amelia J. Calver, arranged as a book of reference for each day of the year. A feature that developed to an amazing extent in 1889 was the compilation of genealogies of American families, among which may be mentioned "The Lindsays of America," by Margaret Isabella Lindsay; "John Lee of Agawam (Ipswich) Mass., 1634-1671, and his Descendants of the name of Lee," compiled by William Lee; "A Genealogy of the Van Voorhees Family in America," by Elias W. Van Voorhis; "Ancestry of Thirty-Three Rhode Islanders" (born in the Eighteenth Century), by John Osborne Austin; "Historic Families of Kentucky," First Series, by T. Marshall Green; "Weeks Genealogy, Leonard Weeks of Greenland, N. H., and Descendants, 1639-1888," by Rev. Jacob Chapman; and "Fellow, Philo, and Philleo Genealogy, a Record of the Descendants of John Fellow of Norwalk, Conn., a Huguenot Refugee from France," by D. H. Van Hoosear. "The Story of an Old Farm," by Andrew D. Mellick, Jr., described "Life in New Jersey in the Eighteenth Century," with a genealogical appendix. The largest and most complete biographical work ever undertaken in this country, "Appleton's Dictionary of American Biography" (six volumes, royal 8vo), was completed early in 1889.

Poetry.—From Thomas Bailey Aldrich we had "Wyndham Towers," an English story in blank verse, and from Susan Coolidge (Sarah C. Woolsey) "A Few More Verses." "In the Garden of Dreams" was a collection of lyrics and sonnets by Louise Chandler Moulton. "The Cup of Youth, and other Poems," by S. Weir Mitchell, possessed merit, as did "In the Woods and Elsewhere," by Dr. Thomas Hill. "The Afternoon Landscape," by Thomas W. Higginson, was the title of poems and translations. Will Carleton published a volume of "City Legends," and James Whitcomb Riley "Pipes o' Pan at Zekesbury." "Legend Laymone" was a narrative by Mrs. M. B. M. Toland. H. S. Fisher wrote "Olden Times, or Pennsylvania Rural Life Some Fifty Years Ago," and Madison J. Cavein "Accolon of Gaul and other Poems." "Lake Lyrics," by W. W. Campbell came from Canada, as did "Madeleine and other Poems," by James McCarroll. "The Wooing of Grandmother Grey" was told by Kate Tannatt Woods; and a Christmas souvenir was "The Yule Log," by Celia Thaxter, illustrated by Elizabeth B. Humphrey. Collections of the poems of the late Edward Rowland Sill were made in two dainty volumes. Other noteworthy books include: "Christmas Carillons," by Annie Chambers-Ketchum; "The Children and other Poems," by Charles M. Dick-

inson; "Bluebird Notes," by Ira Billman; "Poems," by J. A. Egerton; "The Rose of Flame," by Anne Reeve Aldrich; "Mother Carey's Chickens," by Wilbur Larremore; and "Poems," by Carlotta Perry. "In Realms of Gold," by James B. Kenyon, whose "Out of the Shadows" has won high praise, passed to a second edition. "Idyls of the Golden Shore," by H. Maxwell, refer to California; Walter Learned wrote "Between Times"; W. A. Rice, "Through Broken Reeds"; and Caroline May, "Lays of Memory and Affection." "Rebel Rhymes" were by Elizabeth J. Hereford; "The Masque of Death," by George L. Hildreth; and Harriet McE. Kimball put forth a volume of "Poems." "Sacred Idyls" was a metrical version of Solomon's Song, by James Strong; the author of "Thine Forever," furnished "In the Presence"; and "Reliques of the Christ," by Denis Wortman were above the average of religious verse. To drama of the lightest type belong "To-night at Eight," comedies and comediettas by Fanny Aymer Mathews; "The Mouse Trap and other Farces," by William D. Howells; "Early Vows" and "On Guard," by C. Townsend; and "The New Pandora," by Harriet H. Robinson. Elizabeth Porter Gould selected "Gems from Walt Whitman," D. B. Duffield "Stray Leaves of Life," "Musical Movements" was an anonymous selection of prose and verse, and "Curiosities of Matrimony" an odd compilation by W. Odlin. Popular verse for elocution was J. C. Harvey's "Lines and Rhymes." An unusually good anthology was presented by George Cary Eggleston in "American War Ballads and Lyrics."

Criticism and General Literature.—Under this heading come "Essays," by Henry T. King, and "Essays, Religious, Social, and Political," by David A. Wasson. "Days out of Doors," by Dr. Charles C. Abbott, recorded a naturalist's rambles about home. George H. Ellwanger told "The Garden's Story" in a new and attractive way. Horace Lunt gave us "Across Lots," and Bradford Torrey "A Rambler's Lease." "Indoor Studies," was a new departure by John Burroughs from the realm of nature into that of man. "Stray Leaves of Literature," was the title of thirteen essays by Frederick Saunders, author of "Salad for the Solitary." From Donald G. Mitchell we had "English Lands, Letters, and Kings," and "French Traits," by W. C. Brownell, was an essay in comparative criticism. From A. S. Hill came five papers on "Our English," and "The Jew in English Fiction," was the subject of a course of lectures by Rabbi David Philipson. Henry Van Dyke wrote on "The Poetry of Tennyson"; T. Davidson, "Prolegomena to 'In Memoriam'"; and W. J. Alexander "An Introduction to the Poetry of Robert Browning." Hiram Corson wrote also "An Introduction to the Study of Shakespeare," and "The True Story of Hamlet and Ophelia" was a new interpretation with a striking theory evolved by Fredericka B. Gilchrist. "Scottish Poets in America" was a collection of sketches by J. D. Ross, and Ivan Panin furnished "Lectures on Russian Literature." "Principles and Practice," a series of brief essays by H. C. Trumbull, filled six small volumes. W. Dixey explained "The Trade of Authorship." Charles W. Hut-

son prepared "A History of French Literature," and a revised and enlarged edition was also made of the "Manual of Historical Literature," of Charles K. Adams. To the literature of folklore belong "Korean Tales," by H. N. Allen, Foreign Secretary of Legation for Korea; "Pawnee Hero Stories," by G. B. Grinnell; "The Tree of Mythology," by C. De B. Mills; and "Legends and Myths of Hawaii," by his Majesty King Kalakaua, edited by R. M. Daggett, late United States minister at the islands. Selections of value were: "Character and Comment," from the novels of William D. Howells, by Minnie Macoun; "Half-Hours with the Best Humorous Authors," by C. Morris; and "The World's Best Books" in the opinion of Frank Parsons and F. E. and Richardson Crawford. Huntingdon Smith compiled a "Century of American Literature"; "The Ideals of the Republic," or "Great Words from Great Americans," appeared without the name of the arranger; and "Two Thousand and Ten Choice Quotations in Prose and Poetry" were put together by T. W. Handford. "Anonyms, a Dictionary of Revealed Authorship," by William Cushing, supplemented the first and second series of "Initials and Pseudonyms," by that author. Anna L. Ward edited a valuable "Dictionary of Quotations in Prose from American and Foreign Authors," and "Fact, Fancy, and Fable" was compiled by Henry F. Reddall. William J. Rolfe edited "Select Poems of Wordsworth," with notes, and "Fairy Tales in Prose and Verse." "The Scientific Papers of Asa Gray" were published in two volumes, as selected and arranged by Charles S. Sargent, and "The Complete Works of Rowland G. Hazard" were edited in four volumes by Caroline Hazard. Two volumes were issued of the "Century Dictionary," edited by William Dwight Whitney.

Political, Social, and Moral Science.—To politics belong: "The State, Elements of Historical and Practical Politics," by Woodrow Wilson; "Essays on Government," by A. Lawrence Lowell; "The Political Problem," by Albert Stickney, dealing with our present methods of election; a study of "The Australian Ballot System as embodied in the Legislation of Various Countries," by J. H. Wigmore; and "Politics as a Duty and a Career," by Moorfield Storey. "An Appeal to Pharaoh," anonymous, was a proposed "radical solution of the negro problem" by deportation. Philip A. Bruce treated of "The Plantation Negro as a Freeman," and J. R. Brackett of "The Negro in Maryland," and "Pleas for Progress," by Atticus G. Haygood, discussed, with other topics, the needs of the negro. Edwin Sutherland foretold "The Destiny of America, the Inevitable Political Union of the United States and Canada," and proceedings of the Scotch-Irish Congress at Columbia, May 8-11, 1889, were published under the title of "The Scotch-Irish in America." E. S. Wheeler wrote on "Prohibition"; G. Iles, on "The Liquor Question in Politics"; J. N. Stearns, "The Constitutional Prohibitionist"; and "The Political Prohibitionist for 1889" was a handbook for the aggressive temperance people of the United States. In connection with the subject may be mentioned "Alcohol Inside and Out," by Elisha Chencery, M. D. "The National Sunday Law," by Alonzo T. Jones, was an argu-

ment before the United States Committee on Education and Labor, and from the same author we have "Civil Government and Religion, or Christianity and the American Constitution." "Institutes of Economics," was a succinct textbook of political economy, by Elisha B. Andrews; David A. Wells published "Recent Economic Changes"; Edward Atkinson, "The Industrial Progress of the Nation, Consumption Limited, Production Unlimited," articles collected from magazines; Richard T. Ely, "An Introduction to Political Economy"; and E. C. Lunt, "The Present Condition of Economic Science." Vol. II of "Ultimate Finance," by W. N. Black, also appeared. Publications of the American Economic Association were "Malthus and Ricardo," by Simon N. Patten; "The Study of Statistics," by Davis R. Dewey; "Analysis in Political Economy," by W. W. Folwell; a "Theory of Wages," by Stuart Wood; and "Possibility of a Scientific Law of Wages" and E. Andrew's "An Honest Dollar." "Land Politics of the United States" were the subject of a paper by President James C. Welling, of Columbian University. "Outlines of a New Science," by E. J. Donnell, had reference to the tariff question. C. W. Baker discussed "Monopolies and the People." "The Public Regulation of Railways" was considered by W. B. Dabney. The annual report of the Bureau of Statistics of the Treasury Department at Washington, on "Foreign Commerce and Navigation," was issued, and "Trade and Transportation between the United States and Spanish America," by W. E. Curtis, was a publication of the State Department. The "Manual of Industrial and Commercial Inter-course between the United States and Spanish America for the Year 1889" also appeared. Nicholas Paine Gilman made a careful study of "Profit-Sharing between Employer and Employee"; Rev. D. R. McAnally discussed "The Unemployed, who they are, why they are idle, and what is the Outlook"; and Hugo Bilgram, "Involuntary Idleness." Helen Campbell wrote "Prisoners of Poverty Abroad," and C. Osborne Ward "A History of the Ancient Working People, from the Earliest Known Period to the Adoption of Christianity by Constantine." "A Treatise on Co-operative Savings and Loan Associations," by Scynour Dexter, was a valuable contribution." G. E. Blakelee published an "Industrial Cyclopædia," and J. C. Simonds, J. T. McEnnis, and J. C. Ridpath, "The Panorama of the World's Great Nations, Social, Industrial, and Political." L. P. McCartney edited the "Annual Statistician and Economist for 1889." "Crime" was studied as to its nature, causes, treatment, and prevention, by S. M. Green; Joseph H. Crooker propounded "Problems in American Society," and James A. Skilton wrote on the "Evolution of Society." Vol. XXI of United States Census Reports was by F. H. Wines on "The Defective, Dependent, and Delinquent Classes of the Population of the United States, as returned at the Tenth Census," and "Anarchy and Anarchists" was a history of the Chicago Haymarket conspiracy, by Michael J. Schaack, captain of the police on duty at time of the riot. A most important contribution to statistics of social science was "A Report on Marriage and Divorce in the United States, 1867-

1886," by Carroll D. Wright, Commissioner of Labor, issued in December, 1889, from the Government Printing-Office. D. Convers wrote "Marriage and Divorce in the United States, as they are, and as they ought to be"; W. L. Snyder "The Geography of Marriage, or Legal Perplexities of Wedlock in the United States."

Theology.—"Our Christian Heritage," by James, Cardinal Gibbons, was addressed to the Catholic Church at large. Charles Woodruff Shields published Vol. II of "Philosophia Ultima," or "Science of the Sciences," and the professors of the Chicago Theological Seminary Vol. VI of "Current Discussions in Theology." "The Tests of the Various Kinds of Truth," by James McCosh, was the second series of lectures on the "Merrick Foundation of the Ohio Wesleyan University," the first being "Christian Education," by Daniel Curry. "Whither? O whither? tell me where!" also by Dr. McCosh, was an answer to the "Whither?" of Charles A. Briggs. Essays by Elizabeth Stuart Phelps were collected under the title of "The Struggle for Immortality." George S. Fullerton made "A Plain Argument for God," and Rev. W. H. Platt asked "Is Religion dying?" N. C. Parshall furnished "Proofs of Evolution," J. W. Chadwick "Evolution as related to Religious Thought." From Rev. Myron Adams we have "The Continuous Creation," an application of evolutionary philosophy to the Christian religion, and from James T. Bixby "Religion and Science Allies." "Supernatural Revelation" was from the pen of C. M. Mead, and "The Way: the Nature, and Means of Revelation" from that of John F. Weir. "The Progress of Religious Freedom as shown in the History of the Toleration Acts" was a contribution from Philip Schaff, whose "Library of the Nicene and Post-Nicene Fathers" reached Vol. XII during the year. "Readings in Church History," by James C. Stone, may be ranked with "The History and Teachings of the Early Church as a Basis for the Reunion of Christendom," five lectures by Bishop A. C. Coxe, Bishop G. F. Seymour, and other clergy of the Protestant Episcopal Church. Rev. Julius H. Ward discussed "The Church in Modern Society," and Richard T. Ely "Social Aspects of Christianity." "Methodist Episcopalianism" was by Mrs. G. W. Chandler, and "Deaconesses in Europe," by Jane M. Bancroft, and "Deaconesses Ancient and Modern," by Rev. H. Wheeler, are suggestive. Rabbi I. W. Wise made "A Defense of Judaism *versus* Protestantizing Christianity," and works of a polemical drift were "Romanism and the Republic," by I. J. Lansing, and "Rome in Canada," by C. Lindsey. "A Church and her Martyrs," by D. Van Pelt, contained the history of the Church of Holland. To Biblical research belong: "The Authorship of the Fourth Gospel and other Critical Essays," from unpublished papers of the late Ezra Abbot; "The Bible and other Ancient Literature in the Nineteenth Century," by L. T. Townsend; "The Gospel of Common Sense," as contained in the Epistle of James, by Charles F. Deems; "The Bible and Modern Thought," by G. H. Emerson; "The Gospel in the Book of Numbers," by L. R. Dunn; "Indications of the Book of Job," by E. V. Latch; and "The Poetry of Job," by G. H. Gilbert. "The Lily among

Thorns" was "A Study of the Biblical Drama entitled the Song of Songs," by William E. Griffiths. Jacob E. Price wrote "The Book Divine," and Nathaniel West "Studies in Eschatology." Vol. II of "Scriptures, Hebrew and Christian, arranged and edited as an Introduction to the Study of the Bible," by E. T. Bartlett and J. P. Peters, covered "Hebrew Literature," and Vol. I of the "Commentary on the Old Testament," by Drs. Terry and Newhall, Genesis and Exodus. "The Bible View of the Jewish Church" was presented by Howard Crosby. "Aryans, Semites, and Jews," by Lorenzo Burge, was a companion volume to "Preglacial Man and the Aryan Race." "Aryan Sun Myths," anonymous, was an attempt to explain all religions, and "New Light from Old Eclipses," by W. M. Page, corrected, it was claimed, errors of chronology and harmonized the four gospels. E. W. Rice wrote a "People's Commentary on the Gospel according to St. Luke," and A. C. Kendrick "A Commentary on the Epistle to the Hebrews." "Studies in St. Luke's Gospel" were made by Charles S. Robinson, who published also "From Samuel to Solomon." A. N. Brooks and D. B. Ford were joint authors of a "Commentary on the Epistle to the Romans." E. I. Erret prepared, "Evenings with the Bible." Ross C. Houghton was the author of "John the Baptist, the Forerunner of our Lord," and J. N. Fradenburgh of "Old Heroes, the Hittites of the Bible." "Famous Women of the Old Testament" was by Morton B. Wharton, and "Studies in the Four Gospels for Young People," by Rev. Jesse L. Hurlbut. "Word-Studies in the New Testament," Vol. II, was a scholarly and important contribution by Marvin R. Vincent, and "Notes on Difficult Passages in the New Testament" were provided by Elias Riggs, while J. W. McGarvey made "Class Notes on Sacred History." Sermons and general works of a religious order were: "The Dignity of Man," by Bishop S. S. Harris, of Michigan; "Sermons by the Late E. R. Welles"; "Signs of Promise," by Rev. Lyman Abbott; "The Man of Galilee," by Atticus G. Haygood; "The Immanent God, and other Sermons," by Abraham W. Jackson; "The Kingdom of the Unselfish," J. L. Peck; "Living Questions," by W. Hathaway; "Christian Thought," sixth series, edited by Charles F. Deems; "Supreme Things in their Practical Relations," by E. F. Burr; "Diabology," the Bishop Paddock lectures of 1889, by E. H. Jewett; "Christian Manliness," by J. R. Thompson; "Belief," by G. L. Chaney; "Salvation," by O. Cone; "Why am I a Friend?" by J. J. Cornell; "Christ in the Life," by W. S. Woodbridge; "Revelation," by I. M. Atwood; "Christ and his Teachings," a second volume from the sermons of the late A. G. Mercer; "Believing and Doing," sermons by L. H. Reid; "Prophetic Lights" and "Fathers of the Catholic Church," by E. J. Waggoner; "Future Probation examined," by W. Delos Love; "Christian Doctrine," by Jonathan Weaver; "The Physiology of the Soul," by J. H. Wythe; "Recognition after Death," by J. A. Hodge; "The Sacramental Teaching of the Lord's Prayer," by E. A. Larrabee; "Emmanuel, the Story of the Messiah," by W. F. Cooley; "Modern Miracles," by Leila Thompson, with preface by Alexander McLaren;

"The Perfection of Man by Charity," by Francis H. R. Buckler; "Unto the Uttermost," by J. M. Campbell; "Behold the Lamb of God," by H. R. Withers; and "Guide-Marks for Young Churchmen," by Bishop R. H. Wilmer, of Alabama. J. H. Hurlbut wrote "The Lesson Commentary on the International Sunday-School Lessons" for 1890, and "Sermons" on the same were published by the "Monday Club." John H. Vincent was author of "The Church-School and the Sunday-School Normal Guide." Annie Darling wrote "A Message for the King's Daughters," and "Seed-Thoughts for Workers in his Name." "Sunshine for Dark Hours" was compiled for invalids by Charles F. Deems, "Ad Lucem" by Mary Lloyd, for the distressed, and "Polished Stones and Sharpened Arrows," by C. W. Bibb, for the struggling. "Sermon Stuff," by S. D. McConnell, was a collection of skeleton sermons. E. Hungerford prepared "The American Book of Church Services," and G. T. Shinn "King's Handbook of Notable Episcopal Churches in the United States." R. F. Weidner published Vol. II of the "Theological Encyclopedia." A. C. Thompson's "Foreign Missions" and J. Liggins's "Great Value and Success of Foreign Missions" were the leading works on this subject, and Nora Marks gave "Facts about the Salvation Army." R. V. Foster wrote "A Brief Introduction to the Study of Theology"; K. S. Kedney, "Christian Doctrine harmonized and its Rationality vindicated"; D. B. Purinton, "Christian Theism"; and "Theism" was the latest of "Studies in Theology" by Bishop R. S. Foster. J. C. F. Grumbine treated of "An Old Religion," and J. T. Sunderland of "The Liberal Christian Ministry." "Elsmere Elsewhere," by "a disciple of James Freeman Clarke," was from the pen of Judge B. F. Burnham. "Beacon Lights of the Reformation," by Robert F. Sample, was a collection of lectures on the life and times of Wycliffe, Savonarola, and Luther, and "Lectures on the Augsburg Confession on the Holman Foundation," delivered during twenty years, were also published in a large volume. Carroll Cutler wrote "The Beginnings of Ethics"; J. A. Hall, "Glimpses of Great Fields"; and W. M. Salter, "Ethical Religion." "Agnosticism and other Essays," by Edgar Fawcett, were provided with a prologue by Robert G. Ingersoll.

Jurisprudence.—Vol. XXV of the "Statutes at Large of the United States" covers the period from December, 1887, to March, 1889, and was issued from the Government Printing-Office. From the same source came also Vol. II of "Reports and Decisions of the Interstate Commerce Commission" and the "First Annual Report on the Statistics of Railways in the United States" to that body for the year ending June 30, 1888. "Notes on the Revised Statutes of the United States and the Subsequent Legislation of Congress" were published by J. M. Gould and G. F. Tucker. "Constitutional History of the United States, as seen in the Development of American Law" was the title given to a course of lectures before the Political Science Association of the University of Michigan by Thomas M. Cooley, Henry Hitchcock, and others, and "American Constitutional Law" was treated in two volumes by J. I. C. Hare. A fifth edition

of J. F. Dillon's "Removal of Causes from State Courts to Federal Courts" was revised and enlarged and adapted to the act of March 3, 1887. "The Border Land of Federal and State Decisions," by G. W. Pepper, was the Sharswood prize essay for 1889 in the Department of Law of the Pennsylvania University. O. P. Shiras compiled "Equity Practice in the United States Circuit Courts." "The Commentaries on American Law" of James Kent were edited in a revised edition with notes by W. M. Lacey, and American notes were also made by H. M. Rumsey on W. S. Shirley's "Selections of Leading Cases in the Criminal Law" and Herbert Stephens's "Law relating to Actions brought for Malicious Prosecution." Overton Howard set forth "The Life of the Law," or its universal principles. J. D. Lawson published Vols. I and II of "Rights, Remedies, and Practise at Law," to be completed in seven volumes, and D. H. Leahy wrote the "American Law Primer." "Blackstone's Elements of Law" were arranged by Ulric Blickensderfer with analytical charts, tables, and legal definitions. "The Statute of Limitations and Adverse Possession" was treated by H. F. Buswell. "The Law of Arrest on Criminal Charges," by J. G. Hawley, and a "Treatise on Criminal Procedure," by Stewart Rapalje, were supplemented by a "Brief on the Modes of proving the Facts most frequently in Issue, or collaterally in Question, on the Trial of Civil and Criminal Cases," by Austin Abbot, and a "Brief for the Trial of Criminal Cases," by that author and W. C. Beecher. "Privileged Communications as a Branch of Legal Evidence" was by J. F. Hageman. G. E. Harris wrote a "Treatise on the Law of Subrogation"; Beach C. Fisk, Jr., "A Manual of the Law of Wills"; and James L. Bishop, "A Supplement to the Treatise on Insolvent Debtors." Christopher G. Tiederman was author of "A Treatise on the Law of Commercial Paper," and the "Principles of Commercial Law" were laid down for students by R. H. Thornton. J. G. Woerner wrote "A Treatise on the American Law of Administration," and Simon G. Croswell "A Treatise on the Law Relating to Executors and Administrators." "Commentaries on the Non-Contract Law" were from the pen of Joel P. Bishop, and "The General Principles of the Law of Contracts" were put into the form of rules for students by Reuben M. Benjamin. W. A. Keener published Vol. II of "A Selection of Cases on the Law of Quasi-Contracts." "Corporations" were treated by W. W. Cook, W. W. Smith wrote "A Treatise on Private Corporations," and James Parsons made "An Exposition of the Principles of Partnership." Four volumes of "Leading Cases in the Law of Real Property as decided in the American Courts" were published by G. Sharswood and H. Budd, and "Select Cases and Other Authorities on the Law of Property," by J. C. Gray. Joseph W. Errant wrote "The Law relating to Mercantile Agencies"; F. R. Mechem, "A Treatise on the Law of Agency"; F. S. Wait, "A Treatise on Fraudulent Conveyances and Creditors' Bills"; and "Precedents Legal and Commercial" were by E. K. Olmstead and C. Putzel. C. H. Wiltse wrote "A Treatise on the Law and Practice of foreclosing Mortgages," and H. A. Hart and L. K. Rhodybeck "Pointers,

a Brief Digest of Debt, Interest, Usury, Mortgage, and Foreclosure." "Assessors and Collectors" was by G. W. Cothran. To insurance belong: "A Digest of Insurance Cases," by J. A. Finch; "The Laws of Insurance," by J. B. Porter and W. F. Craies, edited with notes and American cases by H. Darrach, and "A History of Insurance in Philadelphia for Two Centuries," by J. A. Fowler. Patent law was extensively treated. Osborne & Co. published "Patent Law"; Merritt B. Hill, "The Laws of the United States relating to Patents and Trade Marks"; Hector T. Fenton, "The Law of Patents for Designs, etc."; and W. Lowery, "Decisions on the Law of Patents for Inventions rendered by the United States Supreme Court," making Vols. VII, VIII, X, and XI of Brodix's "American and English Patent Cases." "An Experienced and Successful Inventor," anonymous, prepared an "Inventor's Manual." "Manual of Laws relating to Pensions" was also anonymous. "Decisions relating to Public Lands" of the Department of the Interior and General Land Office were edited by S. V. Proudfit, and the "Mining Reports" of R. S. Morrison reached Vol. XV. "A Plain Treatise on the Law of Marriage and Divorce" was drawn up by E. A. Hayes and G. W. Austin. Lelia J. Robinson compiled for popular use "The Law of Husband and Wife." J. B. Conkling, under the name of "Marriage and Divorce," presented an abstract of the latest divorce laws of all the States, and G. A. Endlich and L. Richards set forth "The Rights and Liabilities of Married Women in Pennsylvania." "The Powers and Duties of Police Officers" were stated by R. H. Vickers, and "Burial Law" by J. H. Corwin. "Road Legislation for the American State," was by J. W. Jenks. H. A. Gaston prepared "The People's Encyclopædia of Law," and "The American and English Cyclopædia of Law," compiled under editorial supervision of J. H. Merrill, reached Vol. X. "American State Reports," edited by A. C. Freeman, reached its ninth volume; "American and English Corporation Cases," Vol. XXV; and "American and English Railroad Cases," Vol. XXXVII. Vols. XXIX and XXX of Myer's "Federal Decisions" appeared, completing the work. "National Bank Cases," by Irving Browne, contained decisions of the United States Supreme Court relating to national banks between 1881 and 1889. I. F. Paul's "United States Digest" reached Vol. XIX, and "The Complete Digest" covered July to December, 1888. "American Criminal Reports" of J. Gibbons reached Vol. VII, and in addition to the yearly reports of the States and Territories, numerous publications having reference to local legal procedure and practice were issued. W. F. Wernse & Co. published a "United States Real Estate and Law Directory," and the fourth annual issue was made of "Story's Legal Digest and Directory of Lawyers."

Medicine and Surgery.—But few works were published by American authors on these subjects. The leading were: "Pathogenetic and Clinical Repertory of the most Prominent Symptoms of the Head," by C. Neidhard; "Cerebral Localization in its Practical Relations," by C. K. Mills; "The Cerebral Palsies of Children," by W. Osler; "A Practical Treatise on Nervous Exhaustion," by George M. Beard, edited with notes and addi-

tions by A. D. Rockwell; "The Science of Life," by W. H. Parker, a treatise on nervous and physical debility; "Therapeutics of Nervous Diseases," by Charles Porter Hart; "Syphilis of the Nervous System," by H. C. Wood; "The Diagnosis and Medical Treatment of Acute Intestinal Obstruction," by Reginald H. Fitz; "On Disordered Digestion and Dyspepsia," by Frank Woodbury; "Exploration of the Chest in Health and Disease," by Stephen S. Burt; an "Atlas of the Pathological Anatomy of the Lungs," by Wilson Fox; "Outlines of the Clinical Chemistry of the Urine," by C. A. MacMunn; "Practical Notes on Urinary Analysis," by W. D. Canfield; "Diphtheria, its Nature and Treatment," by C. E. Billington; "The Story of the Bacteria," by Thomas Mitchell Prudden; "Modern Treatment of Bright's Disease of the Kidney," by A. L. Loomis; "Lectures on Bright's Disease," by Robert Saundby; "Diseases of Women," by F. H. Davenport, a manual of non-surgical gynecology; "Obstetric Synopsis," by J. S. Stewart; "A Text-Book of Gynecology," by A. C. Copperthwaite; "A System of Obstetrics by American Authors," edited by Barton C. Hirst, Vol. II; and "The Diagnosis and Treatment of Extra-Uterine Pregnancy," by J. Strahan. A "Treatise on the Practice of Medicine" and a "Treatise on Materia Medica and Therapeutics," by Roberts Bartholow, were each revised and enlarged in a seventh edition. "Gynecological Electro-Therapeutics" was by Horatio R. Bigelow; "A Handbook of Obstetrical Nursing," by Anna M. Fullerton; "Monthly Nursing," by A. Worcester, a second and revised edition; "A Treatise on Headache and Neuralgia," by J. L. Corning; "The Practice of Medicine," by I. J. M. Goss; and "Homœopathic Treatment of Rheumatism and Kindred Diseases," by D. C. Perkins. T. Fillebrown published "A Text-Book of Operative Dentistry," Clifford Mitchell "Dental Chemistry and Metallurgy." Francke H. Bosworth was the author of "Treatises on Diseases of the Nose and Throat," in two volumes, one of which appeared; J. M. Harding, of "A Treatise on Catarrh and Kindred Diseases"; and A. H. Buck of "A Manual of Diseases of the Ear." "Diseases and Injuries of the Ear," by C. H. Burnett, was No. 5 of "Practical Lessons in Nursing." Francis Valk published "Lectures on the Errors of Refraction and their Correction with Glasses"; Douglas Graham, "Massage"; and Brandreth Symonds, a "Manual of Chemistry" for medical students. Vols. VI and VII of "A Reference Handbook of the Medical Sciences," edited by A. H. Buck, in eight volumes, appeared, as did Cuthbert Bowen's "Handbook of Materia Medica, Pharmacy, and Therapeutics," and "A Handbook of Materia Medica and Homœopathic Therapeutics" by Timothy F. Allen. "Favorite Prescriptions of Distinguished Practitioners" were collected by B. W. Palmer, and J. M. Keating edited a "Cyclopædia of Diseases of Children" in four volumes, one of which was issued. Wesley Mills wrote "A Text-Book of Animal Physiology"; C. E. A. Semple, "Essentials of Pathology and Morbid Anatomy"; James Young, a "Synopsis of Human Anatomy."

The few books in surgery included: "Operations in Surgery," by W. H. A. Jacobson; "A Contribution to the Surgery of the Spinal Cord,"

by William Thorburn; and "Experimental Surgery," "Intestinal Surgery," and "Surgical Bacteriology," by Nicholas Scenn. "Wood's Medical and Surgical Monographs," was a series initiated during the year. "Operations on Nerves," by Maurice H. Richardson, filled forty-six pages, and Vol. VII of "Transactions of the American Surgical Association" was published, as also Vol. X of the "Index Catalogue of the Library of the Surgeon-General's Office." "A Manual of Instruction in the Principles of Prompt Aid to the Injured" was a valuable work by Alvah H. Doty, designed for military and civil use, and Glentworth R. Butler prepared "Emergency Notes." Harold P. Brown wrote on "The Comparative Danger to Life of the Alternating and Continuous Electrical Currents."

General Science.—The books of science published in 1889 were mainly of a popular type, or text-books of principles applied in the useful arts. "The Ice Age in North America, and its Bearings upon the Antiquity of Man" was published by George F. Wright, with an appendix on "The Probable Cause of Glaciation," by Warren Upham. "The Bermuda Islands" were the latest study of Angelo Heilprin, and N. S. Shaler's "Aspects of the Earth" was deservedly commended. Charles A. Young was the author of "A Text-Book of General Astronomy." W. H. Parker wrote "Familiar Talks on Astronomy," and Garrett P. Serviss "Solar and Planetary Evolution." "A Popular Treatise on the Winds" was from the pen of W. Ferrell. "The Philosophy of Evolution," by Starr Hoyt Nichols, "The Effects of Evolution on the Coming Civilization," by Minot J. Savage, "The Evolution of Animal Life," by Rossiter W. Raymond, and "The Evolution of the Earth," by L. G. Janes, belonged to the Modern Science Essayist. Bulletins of the United States National Museum were: "The Batrachia of North America," by E. D. Cope; "Contributions to the Natural History of the Cetaceans," by F. W. True; "A Preliminary Catalogue of the Shell-bearing Marine Mollusks and Brachiopods of the Southeastern Coast of the United States," by W. Healey Dall; and a "Bibliographical Catalogue of the Described Transformations of North American Lepidoptera," by H. Edwards. W. H. Edwards's "Butterflies of North America" was continued; S. H. Scudder described "The Butterflies of the Eastern United States and Canada" in three volumes; and H. Nehrling's "North American Birds," Part I of a series of twelve was issued. "The Elements of Botany," by E. S. Bastin, revised and enlarged, became a "College Botany"; and J. H. Newell edited "A Reader in Botany."

Scientific books for children were: "Birds through an Opera Glass," by Florence A. Merriam; "Up and down the Brooks" and "The Second Year of the Look-about Club," by Mary E. Bamford; and "The Story of a Mountain," by Uncle Lawrence. "Insects injurious to Fruits" were specified by William Saunders, Director of Experimental Farms of the Dominion of Canada, and "Soil-Fertilization" was treated by A. B. Griffiths. "Wines and Vines of California" was by F. E. Wait. "Coal and the Coal Mines" was illustrated by the author, Homer Green; "Thirty-six Observations on Common Minerals" were made by H. L. Clapp; and J. Eggle-

ton compiled "A Catalogue of Minerals" for the use of museums, another bulletin of the United States National Museum. C. G. W. Loek wrote "Practical Gold Mining," and H. Phelps "Practical Marine Surveying." Vol. XXII of Reports of the United States Tenth Census was "On Power and Machinery employed in Manufactures," by W. P. Trowbridge, and H. Hall furnished a "Report on the Ice Industry of the United States"; G. L. Spencer prepared "A Handbook for Sugar Manufacturers and their Chemists." From the Chautauqua press we have "The Chautauqua Course in Physics"; from H. N. Chute, "Elementary Practical Physics"; from J. Richards, a "Manual of Machine Construction"; from J. M. Whitham, "Steam Engine Design"; from R. H. Thurston, "The Development of the Philosophy of the Steam Engine"; from Cecil H. Peabody, for technical schools, "Thermo-dynamics of the Steam Engine"; from S. E. Tillman, "Elementary Lessons in Heat"; from Mansfield Merriam, "A Treatise on Hydraulics"; from G. R. Bodmer, "Hydraulic Motors"; from I. P. Church, "A Treatise on Hydraulics and Pneumatics"; and from T. W. Barber, the "Engineer's Sketch Book of Mechanical Movements." "Economic Value of Electric Light and Power" were treated by A. R. Foote; "Alternate Current Transformer," in two volumes, by J. A. Fleming; "Electricity in our Homes and Workshops," by S. F. Walker; "Modern Electricity," by T. Kirwin; "Practical Electric-Bell Fitting," by F. C. Allsop; and W. P. Maycock furnished "Practical Electrical Notes and Definitions." "The A. B. C. of Electricity" was set down by W. H. Meadowcroft.

The mathematical works included: "Elements of Plane Analytic Geometry," by J. D. Runkle; "Elements of Infinitesimal Calculus," by Joseph Bayma, and Vol. I. of "A Treatise on Linear Differential Equations," by T. Craig.

In intellectual science we have "First and Fundamental Truths," by James McCosh; "An Introduction to the Study of Philosophy" selected and arranged from the writings of W. T. Harris by Marietta Kies; "Man," a philosophical treatise on the human race, in three books, anonymous; "Evolution of the Mind," by R. G. Eccles; a "Handbook of Psychology," by James M. Baldwin, an "Elementary Psychology," by D. Putnam, and "Psychology as a Natural Science applied to the Solution of Occult Psychic Phenomena," by C. G. Raue.

Fine Arts.—Vol. II of the sumptuous "Cyclopædia of Music and Musicians," edited by John Denison Champlin, Jr., appeared toward the close of the year. Other works relating to music were "Musical Analysis," by A. J. Goodrich; "The Story of Music," by W. J. Henderson; "Musical Instruments and their Homes," by Mary E. Brown and W. Adams; "Chopin, and other Musical Essays," by H. T. Finck; a "History of German Song; an Account of the Progress of Vocal Composition in Germany from the Time of the Minnesingers to the Present Age," with sketches of the lives of leading German composers, by Louis C. Elson; and "Voices of Children," by W. H. Leib. Vol. VI of "The Musical Year-Book of the United States, 1888-1889" also was issued. G. O. Seilhamer wrote a

"History of the American Theatre during the Revolution and after, 1774-1792." "The Press and the Stage" was an oration delivered before the Goethe Society by William Winter in answer to Dion Boucicault. An address was also delivered at Wellesley College by Martin Brimmer on the opening of the Farnsworth Art School. T. C. Hailes prepared a "Manual of Drawing"; Ada Cone, a series of lectures on "Perspective"; and C. M. Kurz edited "National Academy Notes and Complete Catalogue 64th Spring Exhibition" of the New York Academy of Design. Vol. I of "Amateur Work Illustrated" appeared, and "Needle-Craft" and "Needle and Brush" were issued by the Butterick Publishing Company. "An Hour with Delsarte" was a study of expression in elocution by Anna Morgan. Mrs. M. G. Van Rensselaer published "Six Portraits," biographie papers on famous artists.

Notable illustrated books were "Selected Etchings" and "Fae Similes of Aquarelles by American Artists," the text of each by Ripley Hitchcock; "Modern American Art," with text by Ripley Hitchcock, Charles De Kay, and others; "Homes of our Forefathers in Boston, Old England, and Boston, New England," from original drawings by Edwin Whitefield; "Historic and Picturesque Savannah," by Georgia Weymouth; Goupil's "Paris Salon of '89"; "Recent English Art," with biographical text by Walter Rowlands; "Salon Celebrities"; and "Selected Paintings from the Paris Exposition." "Christmas Drawings for the Human Race," by Thomas Nast, was the first collection of the pictures of that familiar artist. "The Quiet Life," illustrated by Edwin A. Abbey and Alfred Parsons, was a collection of "certain verses by various hands," arranged by Austin Dobson. Irene E. Jerome illustrated "In a Fair Country" and "Essays from Outdoor Papers" of Thomas Wentworth Higginson; Lucy J. Bailey, Eleanor E. Morse, and others, "Flower Fancies" of Alice Ward Bailey; Dora Wheeler, the "Epithalamium" of Mary Mathews Barnes; and Mary Cecilia Spalding, "A Lost Winter," a poem of Florida by Elizabeth Stuart Phelps. "Off the Weather Bow, or Life's Voyage," was a dainty volume from E. N. Little, and "National Songs of America" were illustrated in colors and monotints, with the music. "Venice" and "The Queen of the Adriatic" were founded on the text of C. Yriarte, and English classics that found American illustrators were "The Low-Backed Car" of Samuel Lover, by W. Magrath; "The Rivals" of Richard Brinsley Sheridan, by Frank M. Gregory; "Lorna Doone" of Blackmore, by several artists; "The Miller's Daughter" of Tennyson, by H. W. Pierce and others; and "Rab and his Friends" of Dr. John Brown, by H. Simon and E. H. Garrett.

Voyages and Travels.—"A Race with the Sun," by Carter H. Harrison, and "From Japan to Granada," by James H. Chapin, with "Bohemian Days," by Mrs. Clara M. Tadlock, are the records of most extensive travel published in 1889, and to this class of books belong: "Around-the-World Stories," by Oliver Risley Seward, and "Footprints of Travel," by Maturin M. Ballou, both designed to interest young people. "European Glimpses and Glances" were put on paper by J. M. Emerson, and "Summer Holidays" is

the title of traveling notes in Europe, made by Theodore Child, previously published in periodicals. "The Land of the Viking and the Empire of the Tsar" were visited by E. F. Blackstock, and Edwin Asa Dix took "A Midsummer's Drive through the Pyrenees." Frank R. Stockton, in a new character, "Personally Conducted" his readers through noted and picturesque parts of Europe, and Elizabeth W. Champney described the adventures of "Three Vassar Girls in Russia and Turkey." F. A. Ober chronicled "The Knock-about Club in Spain," and the "Zig-zag Journeys" of Hezekiah Butterworth this year were made in the British Isles. Joseph and Elizabeth Pennell brought out in book form "Our Journey to the Hebrides." "Cathedrals and Abbeys in Great Britain and Ireland," forty-three in number, had their story told by R. Wheatley. "In and around Berlin," by Minerva Brace Norton, contained details of interest to her sex, and "Winters in Algeria," illustrated by the author, Frederick A. Bridgman, is the best as well as the most artistic work of its kind. "Incidents of a Collector's Rambles in Australia, New Zealand, and New Guinea," by Sherman F. Denton, was a novel story of an original undertaking by three naturalists. The attractions of Alaska would appear far greater than is usually supposed, judging from "The New Eldorado," Maturin M. Ballou's "Summer Journey" thither, and "Picturesque Alaska," by Abby Johnson Woodman, commended in an introductory note by the poet Whittier. "Arctic Alaska and Siberia" was the record of "Eight Months with the Arctic Whalers" spent by Herbert L. Aldrich. "A White Umbrella in Mexico" was a delightful book by F. Hopkinson Smith, amid the many which that country has called forth, and to which are to be added also "Sketches from the Mountains of Mexico," by J. R. Flippin, and "The Boy Travelers in Mexico," by Thomas W. Knox. Alice D. C. Plungeon wrote "Here and there in Yucatan," and Wolfred Nelson "Five Years in Panama." "The United States, Facts and Figures illustrating the Physical Geography of the Country and its Material Resources," by Josiah D. Whitney, was written for and in part published in the "Encyclopædia Britannica." The local sketches include "Studies in the South and West," by Charles Dudley Warner; "Cruisings in the Cascades," by G. O. Shields; "Fifty Years on the Mississippi," a history of river navigation, by E. W. Gould; and "Eight Hundred Miles in an Ambulance" (posthumous), by Laura Winthrop Johnson, with an introduction by George W. Curtis, describing visits to forts and Indian agencies in Wyoming Territory and beyond. "Florida Days," by Margaret Deland, with illustrations by L. K. Harlow, proved a dainty holiday volume. Helen Harcourt wrote "Home Life in Florida," and St. George Rathbone "Paddling in Florida." Lee Meriwether, in "The Tramp at Home," gave us much that is valuable and interesting about ourselves as a people, and "An Eastern Tour at Home," by Joel Cook, was reprinted from the Philadelphia "Ledger." Monro Grant edited "Picturesque Quebec," with a preface by Julian Hawthorne, and C. F. Holder told "All about Pasadena." "Jonathan and his Continent" by Max O'Rell, and "Jack Allyn" was a humor-

ous treatment of American society, translated by Mme. Paul Blouet (wife of Max O'Rell). Works of travel in foreign languages which found American translators were "Into Morocco," by Pierre Loti, and "Among Cannibals," by C. Lunnholtz. "A Visit of Japheth to Shem and Ham," by S. A. Mutchmore, and "Korno Siga, the Mountain Chief, or Life in Assam," belonged to the missionary field, and "Through David's Realm," by E. Staats de Grote Tompkins, described a journey to the Holy Land. Appleton's Handbooks of American Summer and Winter Resorts appeared for 1889, and a Centennial Inauguration Edition of "Appleton's Dictionary of New York" was published. T. McCoun issued "An Historical Geography of the United States," and G. F. Cram a "Universal Atlas."

Educational.—Vol. XI of the "International Education Series," edited by W. T. Harris, was from R. G. Boone, and was devoted to "Education in the United States: its History from the Earliest Settlements." Vol. XII of the same series, by L. R. Klemm, treated of "European Schools." "Contribution to American Educational History No. 2," by Herbert B. Adams, bore as secondary title "Thomas Jefferson and the University of Virginia," and "English Culture in Virginia," by W. P. Trent, in the "Johns Hopkins University Studies," referred to the same period. C. L. Smith wrote "The History of Education in North Carolina," and the Educational Bureau at Washington issued its "Report," 1887-'88. A. S. Welch published "The Teacher's Psychology," and Ellen E. Kenyon "The Coming School," a sequel to "The Young Idea," by Caroline B. Le Row. "School Law" was by Henry Tappan, and educational monographs were "The Training of Teachers in Austria," by E. Hannak; "Science-Teachings in the Schools," by W. N. Rice; and "Graphic Methods in Teaching," by Charles Barnard. "The Essentials of Method" in teaching were set forth by C. De Garmo, and "Teaching Children to think" was a paper read at the meeting of the New York Society of Pedagogy by G. B. Newcomb. "Physiological Notes on Primary Education and the Study of Languages" was from the pen of Mary Putnam Jacobi, and J. Taylor prepared "Notes of Lessons for Young Teachers." "Shall we teach Geology?" was argued by Alexander Winchell. "Form-Study and Drawing in the Common School" was by J. H. French; "Hints for Teachers of Physiology," by H. P. Bowditch; and "The Teacher's Manual of Geography," by J. W. Redway. Among textbooks may be noted "How to study Geography," by Francis W. Parker; B. Y. Conklin's "Complete Graded Course in English Grammar and Composition"; "Numbers Universalized," by D. M. Sensenig, author of "Numbers Symbolized"; "Preparatory and College Latin Courses in English," from the Chautauqua press, by William C. Wilkinson; "English Composition," by A. H. Welsh; and "English and American Literature for Schools and Colleges," by H. H. Morgan. "Round the World with the Poets" was compiled by Mary C. Smith and Sarah C. Winn, and "Miscellaneous Readings and Recitations" by Miss H. E. Holmes. "Seven Thousand Words often mispronounced," by W. H. P. Phyfe, "Blunders in Educated Circles corrected,"

by R. F. Bowden, and "How to punctuate," by W. Travis, are likely to prove assistants to students of every age.

Sports and Pastimes.—The books of sport appear to have been few. "Hints and Points to Sportsmen" was compiled by "Seneca," Kit Clarke told "Where the Trout hide," and "More about the Black Bass" was from J. A. Henshall. J. Bickerdyke was author of "The Book of the All-Round Angler." "Cycling Art, Energy, and Locomotion," by Robert P. Scott, with "Dumbbells, Indian Club Exercises," by M. Börnstein, practically close the list. "Liberty and a Living" was a pleasant record by P. G. Hubert, Jr., of an "attempt to secure bread and butter, sunshine and content, by gardening, fishing, and hunting." W. Steinitz furnished "The Modern Chess Instructor," and J. F. B. McCleery "The McCleery Method of Billiard-Playing." T. S. and J. Goodwin were joint authors of "Official Stake Entries." "Plays for Home Performance" of J. M. Morton were published with a biographical introduction by C. Scott, and "Readings," by George Riddle.

Housekeeping.—The most dainty work of this kind was "Seven Days after the Honey-moon," a treatise on cookery, by S. U. B. "Domestic Economy as a Factor in Public Education" was handled by Ellen H. Richards, and "Household Service," by Mary Ripley. "Plain Talks with Young Home-Makers" were had by F. McCreedy Harris, and the Butterick Publishing Company issued "Home-making and House-keeping." From Catherine Owen (Mrs. C. O. Nitsch) came two volumes, "Progressive House-keeping" and "Choice Cookery." "Dinnerology" was by Pan, and 1,349 new recipes were furnished in "The Ideal Cookery-Book" by Mrs. Anne Clarke and others. "Aunt Mena" had also a "Recipe-Book," and H. L. Sawtelle told "What one can do with a Chafing-Dish." "Home Candy-making" is the title of a little volume by Mrs. S. T. Rorer. "The Housekeeper's Companion" was compiled by Bessie E. Gunter from Southern authorities, and Mrs. F. L. Gillette wrote "The White House Cook-Book." "Cradle and Nursery," by Christine Terhune Herrick, should perhaps be mentioned in this department.

Miscellaneous.—A most important and unique work is "The American Railway," by T. C. Clarke, J. Bogart, M. N. Forney, Horace Porter, and others, with an introduction by Thomas M. Cooley; "The Development of Transportation Systems in the United States" was traced by J. L. Ringwalt. "Crull's Time and Speed Chart," by E. S. Crull, and Poor's "Manual of the Railroads of the United States for 1889" were useful in the service. "Elements of the Art of War," by James Mercur, in a second edition, was adopted as a text-book at West Point. W. Baird prepared an "Index to General Orders of the War Department," "Submarine Mines" was by J. T. Bucknill, and "Internal Ballistics" by J. A. Longridge. "A Dream of Conquest," by Lloyd S. Bryce, was a satire upon our defenceless coast. "Pythian Knight-hood," by J. R. Carnahan, detailed the history and literature of a well-known order. W. B. Matthews published a "Guide for Settlers upon the Public Lands." Books relating to business were "Ready for Business," by G. J. Manson;

"Everyday Business," by M. S. Emery; "The Art of Selling," by F. B. Goddard, and "How to be successful on the Road as a Commercial Traveler," by "an old drummer." N. C. Fowler, Jr., told "About Advertising and Printing;" and D. P. Lindsley drew up "A Short Course in Business Short-hand." "Cards, their Significance and Proper Uses," were explained by the author of "Social Etiquette of New York." Among the most useful works published during the year were "Log Cabins," by W. S. Wickes; "Convenient Houses," by L. H. Gibson; "American Mansions and Cottages," by Charles Pfeiffer; "Safe Building," first series, by L. DeC. Berg; "Ancient and Modern Lighthouses," by Major D. P. Heap, U. S. A.; "A Treatise on Masonry Construction," by Ira O. Baker; "Town and Country School Buildings," by E. C. Gardiner; a "Theoretical and Practical Treatise on the Strength of Beams and Columns," by R. H. Cousins; "Public Institutions, their Engineering, Sanitary, and other Appliances," by F. Colyer, who also supplied a "Treatise on Water-Supply, Drainage, and Sanitary Appliances of Residences"; "Sewerage and Land Drainage," by George E. Waring; "Notes on Water Supply in New Countries," by F. W. Stone; "A History of the Planing Mill," by C. R. Tompkins; and "Weaving Calculations," by C. P. Brooks. "Essentials of the Metric System" were explained by G. Jackson, and the "Report" of the New York Civil Service Reform Association was published with the address of the president, George W. Curtis. A new revised edition was published of "Peculiarities of American Cities," by W. Glazier. Books more or less humorous were "Bench and Bar in California," by Oscar T. Shuck; "Good Things of Life," sixth series; "Said in Fun," by Philip H. Welch; "The Last American," by J. A. Mitchell; "In the 400 and out," by Charles J. Taylor; "The Story of the Puritans," by Wallace Peck; and "Lectures Before the Thompson Street Poker-Club." "Solitarius to his Dæmon" was by C. E. Barns. "Light on the Path" was an attempt to put practical occultism into words. "The Light of Egypt, or the Science of the Soul and the Stars," by Swastika, related to the same theme, and "Signs of the Times" was an address delivered by Elliott Coues, under the auspices of the Western Society for Psychical Research. "She, an Allegory of the Church," by Leo Michael, explained the novel of Rider Haggard, and "Glimpses in the Upper Spheres," by Luther R. Marsh, was a series of revelations to that individual from the patriarchs in the spirit world.

Books of general reference published during the year were "The American Almanac," of A. R. Spofford, twelfth annual volume; "Annuals" of Oliver Optic and Worthington; the "Little Giant Cyclopædia" of K. L. Armstrong; a revised and enlarged edition of "The National Cyclopædia" of Jonathan Periam, in three volumes; "Caspar's Directory of the American Book, News, and Stationery Trade," compiled by C. N. Caspar; the "American Banker's Manual," edited by W. F. Wernse; the "Postal Dictionary" of Edward St. John; the "Stamp Collector's Library Catalogue," Part I, by J. K. Tiffany; the "Publishers' Trade List Annual," for 1889; and "Appleton's Annual Cyclopædia," for 1888.

The following are the figures of book production in the years 1888 and 1889, from the estimates of the "Publishers' Weekly:"

CLASSIFICATION.	1888.	1889.
Fiction	874	942
Law	335	410
Juvenile books	410	388
Theology and religion	482	363
Education and language	413	319
Biography, memoirs	247	173
Poetry and the drama	280	171
Fine art and illustrated books	250	171
Medical science, hygiene	151	157
Political and social science	227	157
Literary history and miscellany	291	144
Description, travel	197	139
Useful arts	124	129
History	144	110
Physical and mathematical science	56	96
Domestic and rural	39	44
Sports and amusements	46	43
Mental and moral philosophy	13	28
Humor and satire	47	25
Total	4,631	4,014

LITERATURE, BRITISH, IN 1889. In England, as in the United States, book production declined during the year, though still showing an excess of from 300 to 400 books over the number recorded in 1887. A total of 6,067 volumes, 1,373 of which were new editions, appears against 6,591 in 1888, 1,631 of which were new editions. The total number of new books was therefore 4,694 in 1889, and 1,040 of these were novels, giving on an average three new novels for each week day, with a slight surplus. About one new edition of older works for each day appeared. An increase was shown in this department, as also in that of juvenile books, while in religious and educational books, in voyages and travels, in history and biography, and in poetry, there was a decline, the failure in quantity in the last instance being amply compensated by the quality. A volume from each of England's three great poets (one being the last utterance of one of her noblest minds) made the year 1889 memorable in the annals of English poetry.

Fine Arts.—The "Portfolio Papers" of Philip Gilbert Hamerton were collected from the "Art Journal," of which that author is editor, and "Portfolio Studies of Ancient Hindu Architecture" were made by B. R. Harrington, C. E., illustrated. "The Architecture of Provence and the Riviera," by David McGibbon, was the only other work of consequence on architecture. "The Year's Art, 1889," was compiled by Marcus B. Huish, containing a mass of interesting information, and from the same author we have "Japan and its Art." "Rosa Bonheur, her Life and Work," was the "Art Annual" for 1889, by René Peyrol, and "A Century of Artists," by William Ernest Henley, was a memorial of the loan collection of painting and sculpture at the Glasgow International Exhibition of 1888, with historical and biographical notices of the artists. The origin and progress of "Art in Scotland" was traced by R. Brydall, and E. R. Mullins composed a "Primer of Sculpture." Of the "Elementary History of Art," by N. D'Anvers, the second volume relating to painting was revised and enlarged in a third edition, by F. Cundall. Mrs. Charles Heaton wrote "A Concise History of Painting," and Thomas Hardman "Advice to Picture-Buyers." "The Earlier English Water-

Color Painters," by Cosmo Monkhouse, was illustrated with fourteen engravings. "Diego Velasquez and his Times" was translated by A. H. Keane, from the work of Prof. Carl Justi, of Bonn. "Pen-Drawing and Pen-Draughtsmen" was a valuable technical work by Joseph Pennell. From Robert Brook we have "Elements of Style in Furniture and Wood-Work," and "Studies from the Museums: Wood Carving," with eighteen plates, was edited by Eleanor Rowe. H. B. Baker described "The London Stage: its History and Traditions, 1576-1888." "Masks or Faces" was a study in the psychology of acting, by William Archer, and H. Sutherland Edwards delineated "Idols of the French Stage." An appendix was issued to the "Dictionary of Music and Musicians," edited by Sir George Grove. To numismatics belong "A Dictionary of Roman Coins," by S. W. Stevenson, revised in part by C. R. Smith, and completed by F. W. Madden, and "Some Rare and Unedited Arabic and Persian Coins," by O. Codrington. "Remarkable Bindings in the British Museum" were described by Henry B. Wheatley, and "Impresses Quaint," by Joseph Crawhall, in an edition of 300 copies. "Historical Scarabs" was a series of drawings from the principal collections by W. M. F. Petrie. An illustrated catalogue of paintings, drawings, and sculpture in the British Fine-Art Section of the Paris Universal Exposition was edited by Henry Blackburn, as also "Academy Notes, 1889," and "Academy Sketches."

History.—History received few contributions from English sources in 1889. "Annals of our Time," by Joseph Irving, was completed in Vol. II, with a supplement to June 20, 1887, the whole presenting the reign of Victoria to the Jubilee, and of "A History of Modern Europe," by C. A. Fyffe, Vol. III, from 1848 to 1878, appeared. "A Sketch of the History of Europe," chiefly international, was made by Arthur R. Ropes, and "A Century of Revolution," by William S. Lilly, was a book of note. J. H. Rose wrote also "A Century of Continental History." "English History Notes, 1689-1727," by F. Freeth, were based upon the "History of England" of J. F. Bright. "The English Restoration and Louis XIV," by Osmund Airy, formed the single contribution to "Epochs of Modern History," and in the series of "English History from Contemporary Writers" "The Crusade of Richard I" was compiled by T. A. Archer and "England under Charles II" by W. F. Taylor. "A Narrative of the Peninsular Campaign, 1807-1814: its Battles and Sieges," was abridged from "The History of the War in the Peninsula," by Lieut.-Gen. Sir W. F. P. Napier, by William T. Dobson, and the "History of the Corps of Royal Engineers" was written by Maj.-Gen. Whitworth Porter. Samuel R. Gardiner's "masterpiece of impartial historic narrative" was continued in Vol. II of "The History of the Great Civil War, 1642-1649," and Vol. V of "The History of the Irish Confederation and the War in Ireland, 1645-1646," edited by John T. Gilbert, was put into print. "Ireland and the Anglo-Norman Church" is a history of Ireland and Irish Christianity from the Anglo-Norman Conquest to the dawn of the Reformation, by G. T. Stokes. "Scotland in 1289" was edited by Henry Gough, and "The Casquet Letters and Mary Queen of Scots, with Appendices," by T.

F. Henderson, practically closed a controversy of long standing by the presentation for the first time of evidence from documents in the British Museum, being, moreover, a scholarly and impartial work. "A History of Ancient Civilization," based upon the "Histoire Sommaire de la Civilisation" of Gustave Ducoudray, was edited by J. Verschoyle, and Part III was issued of "The History of the Mongols," by Henry H. Howorth. "The History of Phœnicia," by George Rawlinson, was profusely illustrated. "The End of the Middle Ages" was a volume of studies by Mary F. Robinson (Mme. Darne-steter), and "The Maid of Orleans and the Great War of the English in France" were treated by W. H. Davenport Adams. "Half a Century of Australasian Progress" was chronicled by William Westgarth, and the "Twelve Years' Reign of H. I. M. Abdul Hamid II," by Princess Annie de Lusignan, an Englishwoman by birth. "The First of the Bourbons" was the most recent study in French history of Lady Jackson. Additions to "Epochs of Church History" were "The Arian Controversy," by H. M. Gwatkin; "The Counter Reformation," by Adolphus William Ward; and "Athanasius, his Life and Life Work," by Henry R. Reynolds. "The Lambeth Conferences of 1867-1878-1888" were edited by R. T. Davidson, Dean of Windsor, and from Edward Clodd we have "A Sketch of Jewish History to the Birth of Christ."

Essays.—Works proper under this heading, which of right covers rather the department of *belles-lettres*, were "Essays toward a Critical Method," by John M. Robertson; "Indolent Essays," by Richard Dowling, author of "Ignorant Essays"; "Essays" of Mark Pattison, in two volumes; "Nature and Man: Essays Scientific and Philosophical," of the late William B. Carpenter, edited by J. Estlin Carpenter; Vol. III of "Miscellanies" of F. W. Newman, being essays political and social; "Arm-Chair Essays," by the author of "Robertson of Brighton"; "Essays chiefly Literary and Ethical," by Aubrey De Vere; and "Men and Women," by James Platt. A "History of Eighteenth Century Literature (1660-1780)" was written by Edmund Gosse, and "Literary Influence in British History" was traced by Albert S. G. Canning. W. S. McCormick delivered three lectures on "English Literature," and an "Outline of English Literature," by J. C. Wright, is an excellent little book. J. Rogers Rees wrote on "The Brotherhood of Letters," and Davenport Adams "By-Ways in Book-Lands." "Wordsworthiana" were edited by William Knight, and A. C. Swinburne made "A Study of Ben Jonson." A theory of "The Secret Drama of Shakespeare's Sonnets" was advanced by Gerald Massey, and "The Evolution of Modern Thought in Modern India" was studied by H. Baynes; "French and English: a Comparison" is a clever book by Philip Gilbert Hamerton. Sir John Lubbock published Part II of "The Pleasures of Life," and records of some of the purest of these are to be found in "Field and Hedge Row," a collection of the last essays of Richard Jefferies; "By Leafy Ways," of Francis A. Knight; "Haunts of Nature," by H. W. S. Worsley-Benison; "Woodland, Moor, and Stream," anonymous; and "The Playtime Naturalist," by J. E. Taylor. "Our Cats and all

about them" was written *con amore* by the artist Harrison Weir, and Lady Lindsay told "About Robins." "The Attic Theatre" is a classical study by A. E. Haigh, and Edwin Hatch wrote "Essays in Biblical Greek." Vol. IV, Book I, of "English Writers," by Henry Morley, deals with the literature of the fourteenth century. John Stuart Blackie published "Scottish Song." "Literature and the Pension List" was compiled by William M. Colles, and "In Cap and Gown" was a collection of Cambridge wit edited by Charles Whibley. From Andrew Lang came "Lost Leaders" and "Letters on Literature," to imaginary American citizens, first published in the New York "Independent." Another volume of interest to Americans was "Americanisms Old and New," compiled and edited by John S. Farmer. "The Folk Lore of Plants" was detailed by T. F. Thistleton Dyer, and Davenport Adams wrote "Witch, Warlock, and Magician." "The Scientific Spirit of the Age, and other Pleas and Discussions" were made by Frances Power Cobbe, from whom we have also "The Friend of Man, and his Friends the Poets." "The Laughing Philosopher in the Middle of the Nineteenth Century" was edited and illustrated by Crowquill, Cruikshank, and Leech. "Through the Ivory Gate," by William W. Ireland; "New Studies in Old Subjects," by J. A. Sparvel-Bayly; and "Historic Oddities and Strange Events," by S. Baring-Gould, may be classed together. A second series of the "Bookworm" was issued, and "Foreign Visitors in England," for the past three centuries, was from the pen of Edward Smith. Books of local interest were "The London Charterhouse, its Monks and its Martyrs," by Dom Lawrence Hendricks; "The History of Hampton Court Palace," Vol. II, by Ernest Law; "Memorable London Houses," by Wilmot Harrison; "The Eyes of the Thames," by A. T. Pask; "Our English Villages," by P. H. Ditchfield; "Royal Winchester," by A. G. L'Estrange; and "The History of Kennington, with Chapters on Cricket," by the Bishop of Tasmania. Vol. III of the works of Thomas Hill Green, consisting of lectures and papers, was edited by R. L. Nettleship. "How to catalogue a Library" was told by H. B. Wheatley. "On descending into Hell" was a letter by Robert Buchanan to Hon. Henry Matthews, Q. C., Home Secretary, concerning the proposed suppression of literature.

Biography.—A "Life of the Rt. Hon. John Bright, M. P.," was written by George Barnett Smith, and the "Life and Times of the Rt. Hon. John Bright," by W. Robertson, was issued in a new edition brought down to the date of the death of the statesman, March, 1889. In addition to the "Wellington" of George Hooper in the "English Men of Action" series, we have "Words on Wellington," by Sir William Fraser; "Notes of Conversations with the Duke of Wellington, 1831-1851," by Philip Henry, Earl Stanhope; and "Wellington; or, the Public and Private Life of Arthur, First Duke of Wellington, as told by Himself, his Comrades, and his Intimate Friends," a hasty and superficial compilation by G. L. Browne. "Speeches of the Rt. Hon. Lord Randolph Churchill, 1880-1888" were collected and edited with notes and an introduction by L. J. Jennings, M. P., and "Speeches

and Addresses of H. R. H., the Prince of Wales, 1863-1888," by James Macaulay. "Prince, Princess, and People," by Henry C. Burdett, reviewed the social progress of England, and "The Life and Work of Duncan McLaren," the "member for all Scotland," were told by J. B. Mackie. Spencer Walpole supplied "The Life of Lord John Russell," and "John Wilkes, a Political Reformer of the Eighteenth Century," was compiled by W. Gregory. In the "Statesmen Series" "Henry the Seventh" was by James Gairdner, "The Marquess of Wellesley" by Col. G. B. Malleon, "Prince Albert" by Charlotte M. Yonge, and "Walpole" by John Morley; in the "International Statesmen," "Henry Grattan" by Robert Dunlop, "Bolingbroke" by Arthur Hassell, and "Sir Robert Peel" by F. C. Montague; in the "Men of Action," "Charles George Gordon" by Col. Sir W. F. Butler, "William Dampier" by W. Clark Russell, "Monk" by Julian Corbett, "Lord Strafford" by H. D. Traill, and "David Livingstone" by Thomas Hughes. "Dr. Arnold of Rugby," by Rose E. Selfe, opened a new series of "The World's Workers," as did "A Life of John Davis the Navigator," by C. R. Markham, that of "The World's Great Explorers and Explorations," of which the second number was "Palestine," by Maj. C. R. Condor. "Four Famous Soldiers" of T. R. E. Holmes were Sir Charles and Sir William Napier, Hodson of Hodson's Horse, and Sir Herbert Edwardes. "The Queen of Naples and Lord Nelson," by J. C. Jeaffreson, was a vindication of Maria Caroline. In the "Famous Women Series," "Saint Theresa of Avila" was by Mrs. Bradley Gilman; "Jane Austen," by Mrs. Charles Malden; "George Eliot," by Mathilde Blind; and "Emily Brontë," by Mary F. Robinson. E. T. Bradley published a "Life of Lady Arabella Stuart," and "Heroines of Scotland" was a charming volume by Robert S. Fittis. In the "Great Writers Series" we have "The Life of John Stuart Mill," by W. L. Courteney; "Schiller," by Henry W. Nevinson; "Heinrich Heine," by W. Sharp; "Gotthold Ephraim Lessing," by T. W. Rolleston; and "Frederick Marryat," by David Hanmay. In "English Men of Letters" must be noted "Sheridan," by Mrs. Oliphant. "Thomas Drummond, Under Secretary in Ireland, 1835-1840: Life and Letters" (known as the inventor of the Drummond light), was from the pen of R. Barry O'Brien, and a "Memoir of Henry Bradshaw," the librarian of Cambridge, was written by G. W. Prothero. P. W. Clayden followed "The Early Life of Samuel Rogers" with "Rogers and his Contemporaries," G. A. Aitkin wrote "The Life of Richard Steele," and from H. S. Salt we have "The Life of James Thomson (B. V.)," the pessimist laureate. William Knight contributed "The Life of William Wordsworth"; Mrs. Alfred Sidgwick, "Caroline Schlegel and her Friends"; and the Autobiography of Mary Howitt was edited by her daughter, Margaret Howitt. "Fanny Burney and her Friends" consisted of selected passages from her diary and other writings. "The Life and Letters of Mary Wollstonecraft Shelley" was by Mrs. Julian Marshall. Interesting volumes were "The Letters and Literary Remains of Edward Fitzgerald," edited by W. A. Wright; "Letters of Horace Walpole," selected and ed-

ited by Charles Duke Yonge; "Lord Chesterfield's Letters to his Godson," for the first time from the originals, by the Earl of Carnarvon; "Letters of Thomas Carlyle, 1826-1836," by Charles Eliot Norton; and "Early Letters of Jane Welsh Carlyle," by David G. Ritchie, the two last in strong contradiction to the view presented by Mr. Froude. "Letters of David Hume to William Strahan" were also edited with notes by G. Birbeck Hill. "Dante Gabriel Rossetti as Designer and Writer" was the first work of William Michael Rossetti on his distinguished brother. From Wilfrid Ward we have "William George Ward and the Oxford Movement." "The Story of William and Lucy Smith" was the record of two unworldly, sweet, and loving lives, edited by G. S. Merriam, and "Charles Stanford: Memories and Letters," was edited by his widow. "Portraits of Friends," by the late Principal John Campbell Shairp, was also published. "Clavers, the Despot's Champion," is a biography of Graham of Claverhouse, and "The Life and Letters of Charlotte Elizabeth, Princess Palatine and Mother of Philippe D'Orleans," were collected and compiled. To Lady Margaret Domville we owe a "Life of Lamartine." Edward Askew Sothorn was the subject of a memoir by T. E. Pemberton. An important work in religious biography was "The Lives of the Fathers," by Canon Farrar, and prominent among missionaries of all ages stands Father Damien, the subject of a small volume by E. Clifford. (See DAMIEN in this volume.) The autobiography of John G. Patton, missionary to the New Hebrides, was published, and in the "Missionary Biography Series" appeared "Lady Missionaries in Foreign Lands," by Mrs. E. R. Pitman, and "Samuel Crowther, Bishop of the Niger," by Jesse Page. Ethel E. Ellis wrote a "Memoir of William Ellis," and Canon G. H. Curteis "Bishop Selwyn of New Zealand and of Litchfield." "Lights and Leaders of Irish Life," by James Stinson, "Bench and Bar" by Mr. Sergeant Robinson, a series of reminiscences by one of the last of an ancient race, and "Personal and Family Glimpses of Remarkable People," by Edward W. Whately, were to some extent biographical.

Poetry.—First, of course, in this division must stand the "Asolando: Facts and Fancies" of Robert Browning (see BROWNING in this volume), the "Demeter, and other Poems" of Tennyson, and the "Poems and Ballads," third series, of Algernon Charles Swinburne. "In My Lady's Praise," by Sir Edwin Arnold, is a collection of poems, old and new, written to the honor of Fanny, Lady Arnold. From George Meredith we had "A Reading of Earth," optimistic, and from William Morris "A Tale of the House of the Wolfings and All the Kindreds of the Mark," Gothic legends rendered half in verse and half in prose. "The Ascent of Man," by Mathilde Blind, and "Long Ago," by Michael Field, received commendation, and "Rhymes of the Times," by Campbell Rae-Brown, and "The Green above the Red: More Blarney Ballads," by Charles L. Graves, were popular books of high merit. From Alfred Austin came "Love's Widowhood, and other Poems," and from Laura Alexandrine Smith "Through Romany Songland." Other poetical works, calling for no espe-

cial criticism, were "Death's Disguises, and other Sonnets," by F. T. Marzials; "English Idyls," by P. H. Emerson; "Poems," by Arthur Stanley; "Eehoes of Thought," by Emily E. Reader; "A Modern Faust, and other Poems," by Roden Noel; "Verse Musings on Nature, Faith, and Freedom," by John Owen; "Flowers of the Night," by Emily Pfeiffer; "The Wanderings of Oisin," by W. B. Yeats; "Days and Nights," by Arthur Symons; "Songs of Adieu," by Lord Henry Somerset; and "A Wayfarer's Wallet," by Henry G. Hewlett. "American Sonnets" was a collection edited by William Sharp. A Fiftieth Anniversary edition was issued of the "Festus" of Philip James Bailey, and the poetical works of Elizabeth Barrett Browning were edited in an edition similar to that made last year of those of Robert Browning.

Fiction.—No novel in England attained very great success this year. "The Two Chiefs of Dunboy" was an Irish romance of the last century by James Anthony Froude, which disappointed expectation, and "The Reproach of Annesley" was a second effort by Maxwell Gray, author of "The Silence of Dean Maitland." A masterpiece of its kind, lurid and terrible, was "The Land of Darkness," by Mrs. Oliphant, followed by "Some Further Chapters in the Experiences of the Little Pilgrim," and novels from that authoress were "Lady Car" and "Neighbors on the Green." Edna Lyall wrote "A Hardy Norseman" and "Derriek Vaughn, Novelist," deservedly popular; B. L. Farjeon, "The Peril of Richard Pardon" and "Toilers of Babylon"; Grant Allen, "The Tents of Shem," the scene of which was laid in Algeria; Walter Besant, "The Lament of Dives," "The Bell of St. Paul's," and "For Faith and Freedom"; R. D. Blackmore, "Kit and Kitty"; Mrs. L. B. Walford, "A Stiff-necked Generation" and "A Sage of Sixteen"; and S. Baring-Gould, "The Pennycomequicks," "Zit and Zoe" and "Lady Bluebeard" were anonymous and amusing. "Thoth" and "A Dreamer of Dreams," also anonymous, were respectively a strange story of the days of Athens under Pericles and a sermon on the opium habit. May Kendall wrote "Such is Life," and Stepniak "The Career of a Nihilist," while stories of historical times in England were "Micah Clarke," by A. C. Doyle, of the days of the Roundheads and Covenanters, and "Mistress Beatrice Cope," by M. E. LeClere, of those of the Stuarts. Justin McCarthy and Mrs. Campbell-Præd produced in collaboration "The Ladies' Gallery," and from Justin H. McCarthy came "Lily Lass." H. Rider Haggard's "Cleopatra" was a tale of Egypt, and he also published "Allan's Wife." W. Clark Russell was responsible for "An Ocean Tragedy" and "Marooned." "A Window in Thrums," which gave a strikingly realistic and yet poetic picture of Scottish life, was by J. M. Barrie, whose "When a Man's single" was also a success. "Bireh Dene," by William Westall, "Passion's Slave," by R. Ashe King, "The Phantom Future," by H. Seton Merriman, "The Country Cousin," by Frances M. Peard, "Margaret Maliphant," by Mrs. Comyns Carr, "A Fair Emigrant," by Rosa Mulholland, and "Commodore Junk," by G. Manville Fenn, were novels somewhat above the ordinary type. From Miss Braddon there was a

single story, entitled "The Day will come." "The Wing of Azrael," by Mrs. Mona Caird, related to that lady's one absorbing theme. Promise of power was shown in "Reuben Saehs, a Sketeh," by Amy Levy, whose tragic death put an end to her career.

Voyages and Travels.—Chief among works of this class must be reckoned "The Story of Emin's Reseue," as told in Henry M. Stanley's letters edited by J. Scott Keltie, with additional unpublished matter supplied by Sir William Mackinnon; and "A Visit to Stanley's Rear Guard at Maj. Barttelot's Camp on the Arumwhimi," made by J. R. Werner. "East Africa and its Big Game" was the theme of Capt. Sir John C. Willoughby, and Archer P. Crouch published "Glimpses of Fever Land, or a Cruise in West African Waters." Charles S. L. Bate-man recorded "The First Ascent of the Kasai." "The History of a Slave," by H. H. Johnston, was a vivid picture of life in the western Sudan. Joseph Thompson described "Travels in the Atlas and Southern Morocco," and W. B. Harris "The Land of an African Sultan." "Golden South Africa" was by E. P. Mathers, and "Two Kings of Uganda: or Life by the Shores of the Victoria Nyanza," by Robert P. Ashe. "The Last Voyage" of Lady Brassey to India and Australia possesses a pathetic interest apart from the charm of its literary and narrative qualities, and from another lady, the Marchioness of Dufferin and Ava, we have "Our Viceregal Life in India." "Indian Life: Social and Religious," was studied in a thoughtful spirit by John Campbell Owen; "Gleanings from Japan" were made by W. G. Dickson; and "The Land of the Dragon: my Boating and Shooting Excursions to the Gorges of the Upper Yangtze," were described by W. S. Pereival. "Ad Orientum," by A. D. Fredericksen, was an expressive title, and "The New Far West and the Old Far East," of W. H. Barneby were, respectively, British North America and Japan and Ceylon. "From Pekin to Calais by Land," was the journey accomplished by H. de Windt. "The Jenolan Caves," by Samuel Cook, described an excursion into Australian wonderland; "In Australian Wilds" was edited by Philip Mennel from sketches of B. L. Farjeon, E. Jenkins, and others; "Impressions of Australia" were set down by R. W. Dale; and Edward Wakefield told the story of "New Zealand after Fifty Years." "The Lesser Antilles" was the subject chosen for a volume by Owen T. Bulkeley, and Sydney J. Hickson, was "A Naturalist in North Celebes." "From London to Bokhara and a Ride through Persia" was by Col. A. Le Messurier. "Russian Pictures" were drawn with pen and pencil by Thomas Mitchell; "Five Thousand Miles in a Sledge" was a midwinter journey across Siberia, made by Lionel F. Gowing; and Ethel B. Tweedie described "A Girl's Ride in Iceland." "Sketches of a Tour through Holland and Germany" were published by J. P. Mahaffy and J. E. Rogers, and "Untrodden Peaks and Unfrequented Valleys, a Midsummer Ramble in the Dolomites," of Amelia B. Edwards, long out of print, again saw the light. "Wanderings of a War Artist" and "Crimean Campaigning and Russian Imprisonment" were experiences of Irving Montagu and R. S. Farquharson, one of

the "six hundred." "Pen-and-Ink Sketches from Naples to the North Cape" were made by Emily A. Richings, and Caroline Geary was at home "In Other Lands." "The Cinque Ports" were described by Montagu Burrows in the "Historic Town Series."

Physical, Moral, and Intellectual Science.—A notable book of the year was "Darwinism: an Examination of Natural Selection, with some of its Applications," by Alfred Russel Wallace. From Francis Galton came a treatise on "Natural Inheritance." James Croll considered "Stellar Evolution and its Relations to Geological Time," and Arthur Newsholme "The Elements of Vital Statistics." Vol. I of "Popular Lectures and Addresses by Sir William Thomson," in the "Nature Series," was "The Constitution of Matter," and "The Scientific Papers of the late Thomas Andrews, M. D.," were edited with a memoir by P. G. Tait and A. Crum Brown. A "Handbook of Geology," for the use of Canadian students, was prepared by Sir J. W. Dawson, and R. J. Harvey Gibson published an "Elementary Biology." "Star Land" was the title of "Talks with Young People about the Wonders of the Heavens," by Sir Robert Stawell Ball, and Vol. I of "Fossils of the British Islands," by Robert Etheridge, was printed. H. Saunders wrote "An Illustrated Manual of British Birds," and John Stuttard "The Butterfly: its History, Development, and Attributes." Popular and useful works were "The Modern Seven Wonders," by Charles Kent; "A Dictionary of Photography," by E. J. Wall; "The Chemistry of Photography," by Raphael Meldola, F. R. S., in the "Nature Series"; "The Telephone," by W. H. Preece and Julius Meier; and "The History of Wool and Woolcombing," by James Burnley. Maj. J. P. Cundill was the author of "A Dictionary of Explosives." "Jenner and Vaccination" was a strong and destructive criticism by Charles Creighton, M. D. Sir H. Thompson wrote on "Modern Cremation: its History and Practice," and W. Robinson, "Cremation and Urn Burial." "Darwinism and Politics," by D. G. Ritchie, forms an appropriate stepping-stone from the physical sciences to the discussion of moral and social problems. W. Donisthorpe proposed "Individualism: a System of Politics." David Nicol considered "The Political Life of our Time," and Ernest Belford Bax discoursed on "The Ethics" and "The Religion of Socialism" in a somewhat flippant style. "Penological and Preventive Principles" were laid down by William Tallack, with special reference to Europe and America. "Imperial Federation" was discussed by David McL. Morrison; "Home Rule and Federation," by the author of "The Elements of Social Science"; "Disturbed Ireland," by T. W. Russell, M. P.; and "The Government of Ireland: Past, Present, and Prospective," in four parts, by S. S. Lloyd. "How to solve the Irish Land Question" was told by H. O. A. Forster. T. P. O'Conner, M. P., described "The Parnell Movement," and the opening speech for the defense, by Sir Charles Russell, was published as "The Parnell Commission." "Mr. Gladstone and English Politics" was "An Examination of Ideals and an Appeal to Facts," by George Brooks, and "Bismarck: his deeds and his Aims," a volume by Charles Brumm, in answer

to "The Bismarck Dynasty," an article published in the "Contemporary Review." "Cardinal Lavigerie and the African Slave-Trade" was edited by Richard F. Clarke, and "The Land and the Community," by S. W. Thackeray, was furnished with a preface by Henry George. "Froudacity" was an explanation of "West-Indian Fables by Mr. Froude," made by J. J. Thomas. "Russia in Central Asia in 1889, and the Anglo-Russian Question," was a political study by George N. Curzon, M. P., as was also "The Swiss Confederation," by Sir Francis Ottiwell Adams and C. D. Cunningham. "Moral Order and Progress" were handled by S. Alexander, and "Labor and Life of the People, Vol. I, East London," by Charles Booth. "Days with the Industrials," of Alexander H. Japp, recorded adventures and experiences among curious industries. "The Trade of the United Kingdom with the World" was a volume by T. J. Dymes, and "The New Law of Rates and Charges on Railways and Canals," a useful one by Percy Gye and Thomas Waghorn. "Our Unappreciated Petroleum Empire: Oil Discoveries in the Colonies," was called to the attention of his countrymen by Charles Marvin, and George Martineau answered "The Sugar Convention and Bill" of Sir T. H. Farrer with "Free Trade in Sugar." "International Law" was the subject of a series of lectures by Henry Sumner Maine before the University of Cambridge in 1887. Thomas Case made an effort to return to the Baconian philosophy in "Physical Realism," and George J. Romanes wrote on "Mental Evolution in Man" as the "Origin of Human Faculty." "Christianity and Agnosticism" was the title of a controversy consisting of papers by Henry Wace, Thomas H. Huxley, the Bishop of Peterborough, W. H. Mallock, and Mrs. Humphry Ward. Max Müller delivered the Gifford Lectures before the University of Glasgow for 1888, on the subject of "Natural Religion," and the Duke of Argyll asked "What is Truth?" in a brief address to the Students' Representative Council of the University of Edinburgh, Feb. 22, 1889. "On Truth" was a "Systematic Inquiry" by St. George Mivart. R. F. Littledale investigated "The Petrine Claims," and "The Bible and Modern Discoveries," by Henry A. Harper, was in line with "Modern Science in Bible Lands," by Sir J. W. Dawson. Sir Monier-Williams made a careful study of "Buddhism." Vols. II and III were published of the "Sermon Bible," Vols. X and XI of the "People's Bible," of Dr. Joseph Parker, six volumes were added to the "Expositor's Bible," and the latest issue of the "Biblical Illustrator" of Rev. Joseph S. Exell was the "Gospel of St. Luke." In the "Men of the Bible Series," "The Kings of Israel and Judah" were by George Rawlinson. "Christ and his Times," a series of addresses by the Archbishop of Canterbury to the clergy of his diocese, discussed present problems in place of doctrinal points; and sermons of note were "Second Series of Lectures to My Students," "The Lord and the Leper," "The Saint and his Saviour," and various other volumes from Charles H. Spurgeon, who also published Vol. I of "The Salt-Cellars," a collection of proverbs, with notes. "The Incarnation as a Motive Power," by Canon Bright, "Sermons" of Canon Farrar in the "Contemporary Pulpit Li-

brary," "On Behalf of Belief," by Canon Holland, of St. Paul's, and twenty-nine "Living Voices of Living Men," collected in a single volume. George Macdonald published the third series of his "Unspoken Sermons," and "Bible Characters" of Charles Reade exhibits that novelist to us in a new phase.

During the year Vols. XVIII to XXI were issued of the "Dictionary of National Biography," edited by Leslie Stephen, and Vols. III and IV of the new revised edition of Chambers's Encyclopædia. "Sonnenschein's Cyclopædia of Education" was an addition to educational literature, arranged and edited by Alfred E. Fletcher.

Books of interest of a varied character were "Race-Horses: Pedigree, Description, History," by S. F. Touchstone, with a preface by the Duke of Beaufort, who also issued, in the Badmington Library, "Driving"; "Police!" by Charles T. Clarkson and J. H. Richardson; "More Magic," by Prof. Hoffman; and "The Influence of the Stars," by Rosa Baughan. "Is Marriage a Failure?" was a symposium that called forth "Marriage and Divorcee."

The following analysis of the business of the publishing trade in England during 1889 is presented by the London "Publishers' Circular":

CLASSIFICATION.	1888.		1889.	
	New books.	New editions.	New books.	New editions.
Theology, sermons, biblical, etc.	748	164	680	134
Educational, classical, and philological	630	149	557	124
Juvenile works and tales	357	113	418	93
Novels, tales, and other fiction	929	385	1,040	364
Law, jurisprudence, etc.	115	57	66	40
Political and social economy, trade and commerce	111	24	110	16
Arts, sciences, and illustrated works	184	69	112	24
Voyages, travels, geographical research	224	73	208	57
History, biography, etc.	377	109	310	114
Poetry and the drama	163	65	138	54
Year-books and serials in volumes	324	3	342	4
Medicine, surgery, etc.	126	73	133	49
Belles-lettres, essays, monographs, etc.	165	224	157	183
Miscellaneous, including pamphlets, not sermons	507	120	483	107
Total	4,960	1,631	4,694	1,873
		4,960		4,694
Grand total		6,591		6,067

LITERATURE, CONTINENTAL, IN 1889.

Speaking in general terms, Continental literature presented its usual aspects during the year. About the same number of books were published as heretofore, and, where death has not removed some of the regular contributors to this department, well-known and new writers have used their pens for the public good. We begin the present sketch, as is customary, with the country first in alphabetical order.

Belgium.—In the line of historical research, M. Max Rooses, Keeper of the Musée Plantin, has brought out the second volume of his superb contribution to national literature, viz., "L'Œuvre de P. P. Rubens." M. Rooses's labors are spoken of in the highest terms by the crit-

ics. He writes equally well, it may be noted, in Flemish, as was shown in his last book, "From Far and Near," giving his impressions of travel during artistic tours in Spain, England, Denmark, Sweden, Russia, French Flanders, etc. To M. Namèche's "Course of National History" four additional volumes have been added, for the period subsequent to the reign of Philip II in the Netherlands. The "Bibliotheca Belgica" is a treasury of information in regard to the history of books and intellectual life in the ancient Netherlands during the sixteenth and seventeenth centuries. A curious chapter in the history of public charity in old times has been written by M. Edward Gendens, in his monograph on "The Hospital of Saint Julien, and the Night Refuges in Antwerp since the Fourteenth Century." Several writers, named in previous years' records, continue their useful labors, in French and Flemish, as M. Wauters, M. F. de Potter, M. Pol de Mont, M. C. Lemonnier, etc. The "Congo State" attracts much attention, and interesting volumes were written concerning it by E. Banning, Lieut. Becker, and P. Kassāi. Naturally, the question is a burning one in Belgium, as to the use of the national tongue where rival languages coexist. Prof. J. Vanden Heuvel, of the University of Louvain, and Emil de Laveleye have ably discussed this topic. A number of contributions to national history were issued by Prof. A. Seresia, of the University of Ghent, R. de Ryckere, Gen. Wauwermans, etc., which are praised by the critics. Social questions have occupied much attention. The Commission on Labor, appointed by the Legislature, have gone thoroughly into the matter, and published the result in three large volumes (about 3,000 pages). M. G. de Greef has printed the second part of his vast "Introduction à la Sociologie," and M. E. Gilon's "Misères Sociales, la Lutte pour le Bien-être," carried off the prize of 10,000 francs, given by the Royal Academy. In *belles-lettres* Belgium has met with severe loss by the death of A. Clesse, an old and highly esteemed poet, and Max Waller, leader of the group called "Young Belgium." Also, Flemish literature suffers by the death of Dr. N. de Brauwere, a great poet, and Jan Van Beers, a writer of idyls and a "singer of the lowly." Of the novels hardly any require notice. Madame Courtinans, M. Brans, and M. Bultynck, with some others, have done fairly well. In general history, we name two or three books; as, Prof. Vanderkindere's "La Dilatura dans les Textes Francs," deservedly praised by specialists; "The Church and the State under the French Kings," elegantly illustrated; M. R. de Ryckere's "Les Legistes au Moyen Age," an interesting monograph; M. Juste's popular essays on Napoleon I, Napoleon III, and Bismarck; Gen. Wauwermans's "Napoleon and Carnot," a curious episode in the military history of the city of Antwerp (1803-1815). Flemish literature flourishes and is vigorous, although two of its principal representatives have died. M. J. Vuylsteke, F. de Potter, and J. Staes write history in the Flemish tongue, on the middle-age period, the city of Ghent, and the lamentable failure of the Belgian Republic of 1790. Contemporary history, the drama, and literary history offer but slight evidences of progress or success. The most impor-

tant dramatic work of the year is a drama of love, as the critics call it, "The Daughter of Palma Vecchio," by M. F. Gittens. M. Pol de Mont, a poet of great talent himself, in his "Sketches of Contemporary Literary History," gives a very interesting account of the evolution of poetry in Germany, with criticisms on F. Dahn, Carmen Sylva, etc. Literary criticism was active in 1889, as is shown by M. Léon de Monge's "Moral and Literary Studies," Prof. Pergameni's excellent history of French literature, and Abbé J. Lebaeq's "Critical History of the Preaching of Bossuet."

Bohemia.—During the past two years we have not been able to furnish any notice of the literary state and condition or progress of Bohemia. From such material as is now in our reach, however, we here give some account of what has been done there. S. Cech, the great Bohemian narrative poet, holds high rank, and has published some admirable verse, especially "Morning Songs" and "New Songs," lyrics abounding in patriotic enthusiasm. The critics speak well of J. Jakubec's "Country Tales in Verse," K. Leger's "Three Tales" and "Tales in Verse," which are somewhat satirical, and Simacek's "Labyrinth of Love." Julius Zeyer's "Roland" is remarkable for its brilliant imagery, and is pronounced to be a fine echo of the old French "Chanson de Roland." Other poets worthy of praise are Heyduck, in his short, charming "Pictures"; Kvapil, in his "Arrows and Beams"; and Sladek's "Sunshine and Shade." A comedy, "Raphael's Love," by F. A. Subert, director of the National Theatre in Prague, is much lauded, as are also several plays by J. Zeyer, a historical tragedy by B. Adánek, and light comedy by Stolba. The historical novel has its best representative in A. Jirásek. Other writers of repute in this department are V. Vleck, J. Brann, F. Lláma, J. D. Konrad, who draw striking pictures of private and public life in Bohemia during the sixteenth century. S. Cech (named above) brought out, not long since, "An Excursion of Mr. Broucek's to the Moon," a prose satire full of wit and humor. This was followed by "A New and Astonishing Excursion of Mr. Broucek," dealing with the dark side of life in Bohemia. The year has been fruitful in scientific works, especially such as belong to history, study of laws, etc. A new cyclopædia has reached the end of Vol. II.

Denmark.—Literary activity has been remarkable in Denmark this year. Works on history deserving notice take the lead. K. Erslev, V. A. Secher, and A. Larsen, have published creditable and reliable volumes on northern history during the sixteenth and seventeenth centuries. T. Lund has brought out the ninth volume of his elaborate "History of Denmark and Norway at the close of the Sixteenth Century," and Prof. E. Holm writes about "Public Opinion and Executive Power in the Danish-Norwegian State, 1784-'99." Admirable contributions have been made to a "History of Villenage," by J. A. Fredericia, and to a "History of Danish Agriculture," by P. Hansen. Various volumes of reminiscences in connection with Danish history have appeared and furnish excellent reading; also a popular manual of Danish history is under way. The great "Danish Biographical

Dictionary" is regularly carried forward, and contains biographies some much better than others, so the critics say. Prof. F. Nielsen's book on "The Religious Development of Grundtvig" gives a capital sketch of a celebrated Danish theologian. H. Weitemeyer has written for the benefit of foreigners a work of merit entitled "Denmark," and Georg Brandes has published two volumes of "Impressions from Poland" and "Impressions from Russia." These are pronounced to be not only elaborate portraits of Polish and Russian writers, but, as they abound in apposite remarks and reflections on the character of the peoples, to be also delightful reading. In the department of *belles-lettres* much activity has been displayed. N. Möller's verses in his "Autumn" are much praised, as are also the "Poems" of S. Michaëlis. A new novelist of talent is V. Vedel, who has published a book called "Bondage." The critics speak somewhat severely of it, as they do, too, of J. Jørgensen's "Spring Legend" and O. F. Andersen's "Lonely Fellows." K. Gjellerup's "Minna," a tale of modern life, is justly praised as worthy of his reputation. A few other volumes may be named here: "The Fate of Birgitte" and "Still Life People," by Schandorph; "Specters," by H. Pontoppidan; "Griffenfeld," by H. F. Ewald; "As People Marry," by Fru Elizabeth; and "Posthumous Poems," by Ch. K. F. Molbech (died in 1888). In periodical literature it is noteworthy that the past two years have seen born and manifesting ability two new literary and critical journals, viz., "New Soil," advocating modern tendencies and aspirations, and "Literature and Criticism," which is the rallying-point for conservative writers and students.

France.—Politics had much to do with literature in 1889. History, largely in the form of biography, received much attention. This is shown in M. L. Perey's autobiographical memoir of a noble lady of the eighteenth century, and in M. Bardoux's sketch of the life of Madame de Castine, who survived the French Revolution and its excesses. M. G. Bertin has also given a volume to the tragical history of Madame de Lamballe, intimately connected with Marie Antoinette and basely murdered by the mob. Memoirs connected with the revolution a hundred years ago, with Napoleon I and others of that period, indicate the bent of the popular mind on the subject, such as "The French Army in Germany," by M. Galli, which includes the campaign of 1806 and the battles of Jena and Auerstädt; an anonymous writer's "Prince Lucien Bonaparte and his Family"; M. Pellet's monograph entitled "Napoleon in the Island of Elba," containing curious and instructive matter about the dethroned emperor and his sister Pauline. We may also here note De Goncourt's "History of French Society during the Revolution"; M. E. Guillon's "France and Ireland during the Revolution, Hoche and Humbert"; "Diplomatic Correspondence of Talleyrand from 1791-1834"; and M. de Mazade's "A Chancellor under the Old Régime," i. e., the famous Metternich. M. d'Hérison's defense of Marshal Bazaine (mentioned last year) does not meet with much favor. An anonymous writer gives an interesting account of the great warrior Von Moltke. Two works on modern Germany have appeared, i. e.,

M. E. Simon's "Biography of the Emperor Frederick," and M. E. Lavisse's "Three Emperors of Germany." The critics speak of this latter in high terms. Thiers has been bespattered with reproach in a very vindictive spirit by M. J. d'Arcay. Gambetta, on the other hand, has found an ardent champion in M. E. Deschaumes's book, "The Great Patriot." M. de Chandordy, in his "France in 1889," presents much interesting and instructive matter, and expresses confident hope that his native country will in the future recover her own again and be able to defy the triple alliance against her. In the way of autobiography two or three books deserve mention here, viz., the "Autobiography of Michelet the Historian, with his Journal and Letters," edited by his widow; "The Works and Correspondence of D'Alembert," edited by M. Ch. Henri; and "The Journal" (1810-'14) of Stendhal, founder of what is called the "automatic-analyst" school in French fiction. Critical studies in biography are too numerous to make mention of in detail. They give evidence of great activity in this department and display the acuteness and power of keen analysis of French essayists and enthusiasts. Two publications respecting Madame de Sévigné's are highly praised as setting forth in clear light that excellent lady's character and career. As to fiction, there are this year (as one critic says) "mountains of novels," of which we can not undertake to give even the titles. Daudet, Richepin, De Maupassant, Theuriet, Loti, and H. Malot, have been as busy as ever, with about their usual success. Zola, with his realistic abominations, is still at work. His "La Bête Humaine" is to be followed by "L'Argent," purposing to deal with Bourse speculation and gambling. Russian light literature has become very popular in France, as is shown by the large number of translations of books by Tourguénief, Tolstoi, Pushkin, etc. Books of travel are comparatively rare and unimportant this year. M. V. Tissot writes excellently about "La Suisse Inconnue"; M. C. Grad treats of the German people in two remarkable political and economical studies; M. J. Mourier gives a pleasant account of stories and legends of the Caucasus; M. Dai-reaux has published a magnificent work, "Life and Manners on the La Plata," which is said to be the best book yet produced in regard to the Argentine Republic; and several writers set forth matters of interest and value respecting India and Central Asia, such as J. Darmesteter, M. N. Ney, M. E. Boulanger, and M. G. Bouvalot. Almost nothing of moment can be said in regard to poetry in 1889. The annual volume of the posthumous works of Victor Hugo, "Toute La Lyre," is regularly issued (about 1,000 pages). A translation or two from the Greek of Euripides may be noted, as well as the fact that M. Copin has brought to completion his translating Shakespeare's sonnets into readable French verse.

Germany.—The centennial of the French revolution, 1789, and its far-reaching effects on Europe generally, have naturally led to reviewing the past, and noting in how far predictions of wise men have or have not been verified by the events. Heavy folios and huge rows of volumes are rarely now to be seen on library tables, and poetry and books for popular reading

are assuming lighter garb. Short plays in one act are superseding the old style of traditional dignity through five acts, and instead of the ponderous nine volumes of former times, the novels now must be short and easy to read, like those of a French *feuilleton*. Theodor Storm died in 1888, but maintained to the last his high place in the estimation of his countrymen, and great novelists, like Spielhagen and Ebers, content themselves with a single volume. Carmen Sylva follows the new course in regard to books, as do also the Baroness von Ebner and F. Von Saar. Sylva's "Feldposte" is an admirable story; equally so are the contributions of Von Ebner and Von Saar, which Robert Zimmermann, a critic of note, pronounces to be "finely worked cabinet pieces." Spielhagen's "New Pharaoh" is much praised, as are also Ebers's "Gred" and R. Voss's "Dahiel der Convertit." The production of poetry is moderate. New editions of songs and verses of Scheffel, Heyse, Greif, and others are popular. H. Hart, leader of the new school of poetry of "Youngest Germany," is writing a sort of *Messiah* of the future. Dramatic writers of established position, like Von Wildenbruch, A. Wilbrandt, and R. Voss, have done their share during the year. Comedy flourishes as usual, without there being any production of note this year. Additions have been made to the published Goethe correspondence, but the chief place in this branch of literature is assigned to R. Wagner's Letters to Liszt and others, reaching back to the earlier part of the century, and abounding in exciting material. The correspondence of Mrs. Emma Foerster (Jean Paul's daughter) is of a pleasanter sort. Biography continues to hold its place in public esteem, though there are few books to be noted during 1889. The Duke of Coburg (referred to last year) has added a second volume to his memoirs, containing much curious political and other matter. Ranke's "Universal History" has been brought to a conclusion with the ninth volume, prepared by A. Dove and G. Winter. A. Huber's excellent "History of Austria," has been continued by E. Reimann, reaching from Frederick IV to the Congress of Vienna (1763-1815). The book is highly praised by the critics. Another volume relating to contemporary history must here be noted, i. e., Freytag's book on the late Emperor Frederick III. It is regarded as an admirable tribute to a good if not great man, and as throwing much light upon European history of our day. In the history of art C. Justi, in his "Diego Velazquez und Sein Jahrhundert," is highly spoken of by critical authorities. The Bacon-Shakespeare question, at first treated with contempt in Germany, seems to have met with a kind of revival. Of philosophy, properly speaking, there is little or nothing to be said in this year's record, except to mention F. Jodl's "History of Ethics," and W. Windelband's "History of Ancient Philosophy," which have met with good reception.

Greece.—History and historical geography are specially noteworthy in Greece this year, owing chiefly to the fact that the historical sense has grown among the people, and that there is increasing interest in local annals. The "History of the Greek Revolution," written by Spyridon Tricoupis (father of the present Prime

Minister), and published more than thirty years ago, has reached a third edition, revised and considerably enlarged. J. Romanos, director of the Gymnasium at Corfu, has brought out an interesting *brochure*, giving valuable documents relating to the thirteenth and fourteenth centuries. P. Chiotis has issued a sixth volume of the "Historical Memoirs," respecting the Ionian Islands. The volume deals with Church matters, education, trade, etc., from the middle ages to the present time. Dr. De Camburoglu's "History of the Athenians under Turkish Rule," is coming out in parts, and promises to be a work of equal value and interest. A posthumous "History of the World," by the late M. Polyzoidis, edited by G. Kremos, deserves mention as the first universal history on a large scale in modern Greek. C. Tricoupis, the Prime Minister, has published a volume of political speeches, which are said to contain sound teaching, in a lively style. In the department of geography, the chief contributions are, A. Miliarakis's "Study on the Situation of the Ionian Sea in Ancient and Modern Geography," D. Oekonomopoulis's monograph, "Lenos," and a similar treatise on the island of Pholegandros, by A. Charilaos. Philology is on the whole well cared for. S. P. Lambros has brought out the first part of his catalogue of the Greek manuscripts in the libraries on Mount Athos. A famous mediæval poem, "Erotocritus," has been carefully edited by A. Jannaris; the inspector of antiquities has issued a guide in French and Greek to the excavations in Eleusis; and the veteran A. R. Rhangabé has brought out "Antiquities of the Greek State," and an "Epigraphy." Poetry has little to show this year. "The Duchess of Athens," by K. Rhangabé; "Scanderbeg," by A. Antoniadis; "The Election of the Demarch," a comedy by P. Zanos; and "Hymn to Minerva," by K. Palamas, received prizes. Ballads and songs for children have been published, and are much praised. In connection with the jubilee of the university in 1887, Prof. Pantazidis has brought out a "Chronicle of the First Fifty Years of the National University." A beginning has been made with a "Conversations Lexicon," specifically Greek in character, and treating fully of the history, topography, and antiquities of Greece. Dr. N. Politis is the editor.

Holland.—The present year (not unlike its predecessor) has given birth to numerous works of fiction; but few of the books deserve to be named here. Since Vosmaier's death last year, an unfinished novel of his has been issued, and is well received. Cosinus's "Kippeveer" is an amusing medley. L. Van Deyssel, an ardent follower of Zola, continues to write, and has certain followers, of course. Netscher's "Menschen om Ons" and Emant's clever book "Juffroev Lina," are of the naturalistic school, but not offensive. Van Loghem has written some pretty novelettes, and Van Nievelt furnishes a serious book, "Herman Wolsinck," a sort of autobiography of a converted sinner. Scheidius recalls a famous case of kidnapping which happened recently, and Van Woude gives a simple story, simply told. Mr. ten Hoet, in his novelettes, is as romantic and original as ever. Wolters, in "Lucrezia d'Este," succeeds very well in picturing that lady's passionate character, as

contrasted with the gentleness of Eleonora. Mrs. Van Calcar's historical novel, "De Eedgenooten," is termed by the critics ponderous and heavy reading. Two writers of some note have died this year, A. Thyn and M. Hofdyk. Two other writers are gone, Vissering and Zimmerman, a positive loss to political economy and essay writing of the better class. Ten Brink's series of biographies (noted last year) is steadily advancing. Some of the critics think them to be too optimistic. Prof. Pierson furnishes an excellent account of the religious revival in Holland, between 1820 and 1840. The old Dutch continues to be studied with zeal and courage. Dictionaries are under way, and some of the old plays have been edited by Dr. Kalff. Ter Gouw has brought his "History of Amsterdam" down to the days of the infamous Alva. The Dutch Society of Sciences is editing the correspondence of the eminent Christian Huyghens, 1638-'55. Dr. Hurgronje supplies an exhaustive volume on the Mohammedan place of pilgrimage, "Mekka."

Italy.—Native writers speak in a very desponding tone in regard to Italian literature and progress in mental activity. One of these says that "Italy has grown feeble and weary, and is growing more so every year," and he attributes this lamentable state of things to "the prevalent political leprosy, a malady which is increasing instead of diminishing." De Amicis's "Sull'Oceano" is well written and very widely read, but the critics say it is rather wearisome in its seeking to do good, and its too minute description. A novel by D'Annunzio, entitled "Il Piacere," is pronounced to be morbid, and the further remark is made that Italian fiction in general is poor enough, with its inane love stories. A few authors and books commended may here be named, i. e., Mondolfi's "Il Romanzo di Paolo," S. Farina's "Duc Desiderii," Mario Pratesi's "L'Eredità," and M. C. Pelegrini's "Profili Muliebri." The record for poetry is meager and unsatisfactory. Carducci, the first of living poets, has published nothing new, but is engaged in reprinting his prose works. C. Corradino has written some lyrics, under the title "Su pe'l Calvario," which are marked by vigor and spirit. Rondani's "Mito Italico," Belluso's "In Solitudine," and E. G. Boner's "Plenilunio" are much praised in general. Rapisardi has contented himself with translating "Catullus," and Occioni has reprinted his excellent version of "Silius Italicus." The Dante chair, from which so much was hoped, has not yet obtained a professor. Carducci declined to serve, and G. Bovio, it is now supposed, will take it. Dantean literature seems to be largely polemical. A Società Dantesca has been founded in Florence. Bruno's statue was erected in Rome, in June, despite the Pope and his partisans. Numerous publications have followed, on the philosopher and his works, but none of any special value, except Prof. Tocco's "Le Opere Latine di Giordano Bruno esposte et confrontate colle Italiane." This contribution is much and justly lauded. In philosophical history Credaro has made a good book, "Lo Scetticismo degli Academici." C. Nigra, minister at Vienna, has published a work on literary history, "Canti Popolari del Piemonte," which is marked by great breadth of view and depth of insight. A. Traversa has devoted him-

self to Foscolo and Leopardi with good success, and Novati has brought out a volume of remarkable "Critical and Literary Studies." Various volumes of annals and research deserve to be named here, such as E. Musati's "Venice and the Venetians," Ghiron's "Annals of Italy" (in continuation of Muratori's labors), Pasolini's "I Tiranni di Roma, e i Papa nel Medio Evo," R. Cadorna's "La Liberazione di Roma nell' Anno 1870," and F. Bertolini's history of the Risorgimento or great political movement of 1848. The Historical Institute in Rome is doing good work. It has published two volumes, and has several others of merit and importance nearly ready for press. A posthumous production of Manzoni (who died sixteen years ago), on the "French Revolution of 1789 and the Italian Revolution of 1859," may fittingly be noted in concluding all that can now be said respecting Italy during 1889.

Norway.—Literature has been comparatively quiet in Norway this year. The controversy concerning monogamy and polygamy has in a measure subsided, although it is by no means settled. B. Bjørnsen has published his lecture, noted last year as frequently delivered with good effect in Denmark, Norway, and Sweden. The chief opponent of his views is Arne Garborg, in a volume entitled "Free Divorce." Controversy has arisen about the old Norwegian language, which was largely supplanted during the union of Norway with Denmark. A number of interesting pamphlets has been issued, some favoring extreme measures and readoption of the old language, others more conservative urging that every advantage be taken that is possible, in utilizing old words, improving the spelling, etc. Bjørnsen belongs to the latter class, and Garborg to the former. Henrik Ibsen published a play, entitled "The Lady from the Sea," which has been performed at the chief theatres in Norway, Sweden, Denmark, and Germany, and treats of certain abnormal conditions of mind as hypnotism, mystical dreams, and enchantment. Alexander L. Kielland has also brought out a play in four acts, entitled "The Professor." Kielland has, since the beginning of the year, devoted himself to journalism. He is now publishing a daily paper in his native town of Stavanger. Jonas Lie sends out a new and capital story, "Maise Jous"; the heroine is a poor little dressmaker in Christiania, the capital, and the writer deals with social questions in a manner calculated to do good. K. Kristofersen has written a new story, as has also C. Flood, which are said to be well done. A young writer, A. B. Lange, has published a book on America, and K. Hamsun has done likewise. The latter says some things not flattering. We mention, in conclusion, that the historian O. A. Overland has published a collection of Norwegian legends, and the well-known linguist, Prof. S. Bugge, has finished the first volume of his admirable "Studies in Norwegian Mythology."

Poland.—Fiction takes front rank in Poland, as it does so largely elsewhere on the Continent this year. Mle. Rodziewicz's "Dewaitjis" has gained for the writer high reputation for a first book. It is said to be of unusual power, and excellent in tone and principle. Madame Orzeszko's "The Peasant" is praised by the critics for

its masterly power of characterization and profound analysis of the motives usually operating in the peasant class. A historical romance in four volumes, "Vcto," by A. Krechowiecki, deals with seventeenth-century troubles and trials. Another historical romance is "The Turning-Point of History," by J. Rogosz, in which the Hussite movement is freely discussed. Most of the stories issued are devoted to life in the country, among peasants and rural nobility. Jordan, Junosza, Sewer, Dygosinski, Feldmann, and Gomulicki have published popular stories, varying in merit, and with some diverse aims in view, optimism and pessimism being about equally divided. In the drama Rapacki has produced a historical play in five acts; but the one-act *bluettes* and comedies, like "The Wild Rose" and "The Man on a Tour," by Blizinski, enjoy popular favor. A history of the Lemberg theatre is well spoken of. Poetry does not present an encouraging prospect. Adam Plug, an eminent poet and novelist, has brought out "Three Legends from Olden Times," and M. Kraushar supplies two poems, "Tytan," and "Arion of Corinth." Researches into the origin of the Polish nobility have been made with good success. The Chocim war with the Turks, in the days of Sigismund III, has been set forth by Tretiak, and the Swedish war at the same date by Gorski. The French archives have been examined to advantage for the sixteenth century, and Kraushar has brought out a curious work, "Witchcraft at the Court of King Stephen Bathory." The character, mental and moral, of the Slav peoples has been carefully investigated by Zdziechowski. "The History of the Slavs," by Boguslawski, seems to be a failure. The two historical societies in Poland are exercising good influence. Their headquarters are at Lemberg, and the year-book of the Mickiewicz Society and the "Historical Quarterly" alike contain notable articles.

Russia.—The literature of Russia has suffered severe loss this year by the death of Stehedrine, i. e., M. E. Saltikov, in April. He was a very prominent figure, and devoted his great natural abilities and large culture to journalism, public service, and series of fine satires on men and things in Russia. His works number twenty-four volumes, and have had vast influence in forming public opinion. Gontcharov and Tolstoi are writers of the same generation with Saltikov, and of equal rank, but the former has long ceased to do any work of moment, and the latter is noted most of all this year for his strange ideas of religion and morality and his pertinacity in seeking to give them currency. G. Ouspenski is at present the most popular of modern writers of fiction in Russia. A cheap edition of his works has appeared, and Orest Miller has dedicated to him an essay entitled "G. I. Ouspenski, au Explanatory Essay on his Works." N. Mikhailovski has also prefixed a critical introduction, which, with Miller's essay, will undoubtedly help to increase the wide influence for good of Ouspenski's writings. The friends of V. Garshin have compiled a choice volume of "Artistic and Literary Collections" in his memory, mostly biographical and critical. Korolenko has published two charming tales, "Night" and "From Two Points of View." This writer, as the critics say of Tolstoi, appears

to go on the plan and necessity of giving a moral reason and principle to human conception of the universe. Something like this, too, we are told, is traceable through Russian philosophy. V. Solovieff, in his articles entitled "The National Question in Russia," sets forth very clearly and ably that this national ideal consists in the search after "a universal organization of life according to truth." In order to reach so desirable a fulfillment, he holds that the old unity of the Church throughout Christendom must be restored. He paints also a beautiful picture of the brotherhood of all nations in this theocracy of the future. In order to aid in attaining this lofty end, Solovieff is engaged upon a great work not yet completed, viz., "The History and Future of Theocracy; an Investigation into the Universal Historical Method of attaining a Life in Accordance with Truth." Among books on philosophy is M. Troytzki's "Logic of the Sciences," and three dissertations, viz., N. Lange's "History of the Moral Sciences in the Nineteenth Century," of no great merit; Vvedenski's "Attempt to establish a Theory of Matter on the Principles of Critical Philosophy"; and Gilyaroff's "The Greek Sophists," a conscientious and well executed compilation. In the department of history, Bouzeskul's "Pericles" is much praised for thoroughness and accuracy; V. Semevski's "Peasant Question under Alexander and Nicholas," giving the views of the Government, of literature, and of society on serfdom; and N. Semenoff's "History of Peasant Reform," just finished, are pronounced to be important and valuable. Worthy of note are Colonel Maslovski's "History of the Seven Years' War," not yet completed, and biographies of Field-Marshal Paskievitch and of Prince Baryatinski, conqueror of the Caucasus. Slavonic history has been enriched by Kareyeff's "Fall of Poland" and "Historical Sketch of the Polish Diet"; also by Pezwolf's excellent compendium of the historical and philological literature of the Slavonic races up to the eighteenth century. Prejevalski, the celebrated traveler, died this year, just as he had prepared to set out on a fifth expedition into Central Asia. His geographical labors are regarded as especially valuable, in view of Russia's interests in Asia. Matousovski has supplied a "Geographical Description of China," and Vassiliev, of the "Oasis of Akhal Tekke"; Dashkov, the third volume of his "Ethnographical Handbook"; and Smirnoff, a work on "The Teheremisses." In archaeology, the first installment has appeared of Kondakov's and Tolstoi's "Russian Antiquities in the Monuments of Art," drawn from the colonies on the northern banks of the Euxine; and Zakhartchenko's "Kiev as it Is, and Kiev as it Was." In literary history have been brought out collected essays of Sukhomlinov, Maykov, and Alex. Veselovski. Our rather scanty record ends with a few law books, viz., Wulfert's "Anthropologico-Positivist School of Criminal Law in Italy"; Suvorov's "Traces of Western Catholic Ecclesiastical Law in the Monuments of Ancient Russian Law"; and V. Budanov's and Latkin's "Lectures on the History of Russian Law." In statistics the Government has made an interesting return in regard to the "Universities and Secondary Education in Russia."

Spain.—Literature seems to have suffered this year in Spain from a depression like to that noted in regard to other countries. In history nothing of moment has appeared. The Academy of History has begun a new series of memoirs, and brought out "The Swordmaker's Chronicle," which relates to Spanish history under Philip IV and the rebellion of Catalonia, 1640. Gen. F. Fernandez de Cordoba has supplied a third volume of autobiographical memoirs, reaching down to 1868, profusely illustrated. F. Picatoste's three volumes on the grandeur and decadence of Spain, from the close of the fifteenth century onward, are interesting and useful reading for natives who desire to see Spain once more assume her original importance among the nations. A lively account of G. Pizarro's rebellion in Peru and how it was put down (published as Vol. LXX of "Spanish Writers") is praised by the critics, and justly we believe. Oriental studies attract many students, and several helpful volumes have been brought out. Valuable volumes have appeared respecting Burgos and its monuments, Toledo, Seville, Barcelona, Saguntum (now Murviedro) and its destruction by Hannibal, B. C. 219, etc. In poetry almost nothing has come to light. Count Viñaza is publishing the poetical works of the brothers Lupercio and Bartolomé Leonardo de Argensola, which appeared first at Saragossa in 1634. The drama remains stationary, and seems likely from present appearances to decline still further, if not to die out entirely. Much the same is said to be the case with novel writing. Perez Galdós, Pareda, and E. P. Bazan excepted, the novelists of to-day are only translators or imitators of the worst school of French writers. The three just named enjoy great public favor. To the new fortnightly review, entitled "La España Moderna," P. Galdós has contributed "Torquemada en la Hoguera," and E. P. Bazan "Morrión y Boína."

Sweden.—Very few original works have been published this year in Sweden. One young writer, W. von Heidenstam, has made a reputation for himself as a poet, novelist, and traveler. His first book, "Pilgrimage and Travels," was enthusiastically received, and some sketches of travel, "From Col di Tenda to Blocksberg," are very graphic, witty, and amusing. Lately, he has published "Endymion," a kind of allegorical picture of the slumbering East, embodied in a narrative of the journey of two Americans to Damascus. A. Strindberg has returned to his native country after ten years' absence, and is looked on as the Zola representative in Sweden. Ernst Ahlgren (Mrs. Benedictson) committed suicide in Copenhagen not long since. She left "Tales and Sketches," and a novel entitled "The Mother." A. Bondeson has recently published a collection of stories, capitally told, entitled "New Country Tales." Sigurd (A. Hedenstjerne) has issued a volume of "Swedish Pictures and Caricatures," and H. af Trolle leaves a posthumous historical novel on Catherine II of Russia. Sylvia furnishes a novel founded on the life of Queen Desideria, the consort of Charles XIV. John. Carl Blink is a new name in literature; he is about to publish a series of romances dealing with the middle ages in Sweden. Helena Nyblom's "Destinies of Women" is highly spoken

of, as is also J. Nordling's "Women," a collection of sketches of the fair sex. Thora Blanche has published several things that are praised by the critics. Polite literature is enriched by a collection entitled "Fictions and Pictures," by the late K. Wetterhoff, a man of very remarkable talent in poetry as well as prose. In poetry little or nothing is deserving of mention here. The veteran H. Säterberg has produced a cycle of tales named "The Adventures of the Caliph." Bishop Strömberg, recently deceased, gave vent to his religious enthusiasm in both poetry and prose in describing the "Balder Festival" and the "Struggles of the Swedish Church." A. U. Bââth, a realistic poet, has taken in hand old Scandinavian life, as depicted in the ancient sagas, under the title "The Viking Time." F. Hedberg, the veteran dramatist, supplies the public with his recollections of the stage, and B. Schöldström has furnished numerous interesting passages from the history of literature in his volume "Behind the Lowered Curtain." A naturalistic play by A. Strindberg (spoken of above), "Miss Julia," is praised for its style, with expressions of disgust at its plot. P. Wikner, who died last summer, a professor at Christiania, is much spoken of in current publications, and W. E. Svedelius, professor in Upsala for many years, has died, and is highly lauded in a detailed biography. O. Alin, his successor, has published an excellent book on the union between Sweden and Norway. Prof. G. Ljunggren has brought out a new volume, "The Annals of the Polite Literature of Sweden." He has been retired from active duty on a pension, and will devote himself entirely to congenial work of this kind. K. Fähræus has written a capital monograph on Thomas Thorild, who was in England for some years, and afterward a professor at Greifswald. Thorild was certainly one of the most original of Swedish authors, much in advance of his own time—was a sort of John Stuart Mill, in fact—and aimed to elevate the female sex, and to secure to them all their rights and privileges. He is universally admitted to be one of the brightest lights in Swedish literature. The famous Charles XII has obtained two new biographers; one, Captain G. Björling, in popular style; the other, E. Carlsson, who aims at higher scientific treatment. H. Hjärne, professor at Upsala, has undertaken a revision of Russian history, in popular form, from 1682 to 1730. The volume now issued, "From Moscow to St. Petersburg," is highly commended by competent judges, and the continuation of the work is earnestly desired. Miss Ellen Key, who wrote a sympathetic life of the unhappy Mrs. Benedictson (Ernst Ahlgren), has given expression to some striking and valuable "Thoughts on the Reaction"—that is, the much to be deprecated changes, more or less prevailing, in politics as well as religion. Miss Ellen Fries, who enjoys the distinction of being the first Swedish lady elevated to a Ph.D., has begun a work on a large scale under the title "Remarkable Women," including those abroad as well as at home. The eminent historian, Emil Svensén, also publishes a volume on this fruitful topic. Some of the juvenile writings of Linnæus have been collected by the naturalist, E. Ahrling, and are published by the Royal Academy of Sciences.

LOUISIANA, a Southern State, admitted to the Union in 1812; area, 48,720 square miles; population, according to the last decennial census (1880), 939,946; capital, Baton Rouge.

Government.—The following were the State officers during the year: Governor, Francis T. Nicholls, Democrat; Lieutenant-Governor, James Jeffries; Secretary of State, Leonard F. Mason; Treasurer, William H. Pipes; Auditor, Ollie B. Steele; Superintendent of Public Education, Joseph A. Breaux; Attorney-General, Walter H. Rogers; Commissioner of Agriculture, Thompson J. Bird; Chief Justice of the Supreme Court, Edward Bermudez; Associate Justices, Felix P. Poché, Samuel D. McEnery, Charles E. Fenner, and Lynn B. Watkins.

Finances.—The balances in the State treasury on April 30 of this year amounted to \$484,767.01, of which the sum of \$173,788.18 was in the general fund and \$54,258.61 in the current school fund. On Oct. 31 the total balances were \$320,783.37, of which only \$34,424.08 were credited to the general fund and \$11,028.53 to the current school fund. On Jan. 1 the funded State debt was \$11,759,500, in addition to which there was a large unfunded debt.

The total assessed valuation of the State for 1888 was \$223,394,756, and for 1889, \$268,076,914. For State purposes the annual tax-levy is 6 mills on the dollar.

Education.—The following figures for the school year ending in 1889 include returns from all but 4 of the 59 parishes in the State:

Number of public schools—White, 1,304; colored, 665.

Pupils enrolled—White males, 34,869; white females, 32,434; total, 67,313; colored males, 22,080; colored females, 21,521; total, 43,601.

Average attendance—White, 47,759; colored, 31,686.

Teachers employed—White males, 681; white females, 1,065; total, 1,696; colored males, 469; colored females, 201; total, 670.

Number of private schools—White, 184; colored, 15.

Number of teachers—white, 256; colored, 16; total, 272. Number of pupils—white, 5,888; colored, 539; total, 6,427.

The number of youth of school age in the State is 336,137. Nearly two thirds of these were not enrolled in any school during the year.

Ex-Treasurer Burke's Irregularities.—About Sept. 15 reports became current that gross irregularities had been found in the management of the State treasury during the term of ex-Treasurer E. A. Burke, which ended in April, 1888. From a report to the Governor, dated Sept. 28, it appeared that, under the act of 1880, authorizing "constitutional" bonds to be issued in exchange for certain consolidated bonds surrendered there had been printed and signed by the Governor bonds to the value of \$671,000, of which the ex-Treasurer had issued, according to the act, in exchange for consolidated bonds redeemed, only \$217,600, thus leaving in his hands unissued bonds amounting to \$453,400. These should have been turned over to his successor, but were not, and no trace of them could be found in the Treasurer's office. But coupons corresponding to numbers of these unissued bonds were discovered among those that had been paid and canceled. It also appeared that consolidated bonds to the value of \$25,200,

which were exchanged for constitutional bonds and surrendered to the Treasurer for cancellation during 1883 had not been canceled nor handed over by him to the auditor for destruction, as required by law, but that interest-coupons from these bonds, also, were still held by the people and had been paid at the treasury. The report also showed that the consolidated bonds formerly belonged to the Agricultural and Mechanical College, which had been declared by the State Constitution of 1879 to be void, and the destruction of which had been ordered by a resolve of the Legislature of 1882, had never been destroyed, but had been fraudulently reissued, and coupons therefrom had been presented for payment. The value of these bonds was \$278,400. In brief, the State officials found reason to believe that the following State bonds, which should either have been destroyed or still be found in the treasury, had been negotiated and were held by the public:

Unissued constitutional bonds	\$453,400
Consolidated bonds exchanged for constitutional bonds and not destroyed	25,200
Agricultural and Mechanical College bonds not destroyed	278,400
Total	\$757,000

To this sum should be added the amount paid by the State to redeem such interest coupons of these bonds as had been presented to the Treasury, estimated at about \$70,000. These facts, among others, were laid before the Grand Jury at New Orleans about Oct. 1, and that body determined to make a search of the house of the ex-Treasurer, who was at this time in London, and also of his private vault at the State Bank. At the latter place they found unissued constitutional bonds to the value of \$383,400, thereby reducing the amount of these bonds missing to \$70,000, and the total amount missing to \$373,600. It was soon found that the remaining \$70,000 of constitutional bonds were held by two persons—Maurice J. Hart and one Gaines—against whom writs of sequestration were issued, which resulted in the return of \$54,000 of the bonds to the custody of the State, but only till the question of the rights of the holders shall be adjudicated in the courts. The grand jury reported its findings on Oct. 26, substantially as above presented, and at the same time found indictments against E. A. Burke as principal and Maurice J. Hart as a confederate.

There remained another class of State bonds, known as "baby" bonds, issued under the Constitution of 1879, of the denomination of \$5 each, bearing interest at 3 per cent. and running for six years. On Nov. 23 the grand jury made a special report on this subject. Although the matter was so complicated that exact figures could not be given, the jury found reasons for saying that \$420,000 of these "baby" bonds had been illegally issued. Another series of indictments against the ex-Treasurer and others were framed to cover these new-found crimes. The total amount of State bonds illegally in the hands of the public was increased by this latest discovery to \$793,600. All the evidence offered during these investigations pointed to ex-Treasurer Burke as the person who had unlawfully disposed of the missing bonds and had profited by the transactions. On hearing of the disclos-

ures, he at once signified his intention of returning from London and meeting the charges. But instead of doing so he went to Honduras, where he had been granted valuable franchises by the Government, and at the close of the year had made no attempt to answer his accusers.

Levees.—In addition to expenditures by the Federal Government to improve the Mississippi and other rivers of the State, and to protect the adjacent lands from overflow, the Legislature has provided that outlays may be made for the same purpose by local authorities. Under this law four levee districts have been organized and are engaged in local improvements. For 1889 the commissioners of the First District voted to levy a tax of 8 mills, yielding about \$21,000; in the Second District the same rate was voted, yielding about \$15,000; in the Third District 7½ mills, yielding about \$46,000; and in the Fourth District 8 mills, yielding about \$66,000. The total amount available is about \$148,000. The work is under the superintendence of the State Engineer.

Political.—The death, on May 30, of Hon. Edward J. Gay, Member of Congress for the Third District, necessitated the holding of a special election to fill the vacancy. On Aug. 5 a Republican convention at Franklin nominated Henry C. Minor. The Democratic convention was held at Lake Charles on Aug. 13 and nominated Andrew Price. The Republicans made a spirited canvass, several Northern Congressmen being called upon to aid their cause; but at the election, on Sept. 3, the Democrats obtained their usual large majority, Price polling 18,761 votes and Minor 11,405.

Decision.—In February the State Supreme Court rendered an important decision, declaring the act of 1888 known as the Police bill to be constitutional. This act applied to the city of New Orleans and created a police board to be elected by the City Council, which should have full control of the police department.

Immigration.—An Immigration Bureau, supported by the State, and an Immigration Association, conducted by private generosity, are active in securing for the State a proper share of immigrants. Several conventions were held in different parts of the State during the year, to promote the work of these organizations.

LUTHERANS. The year 1889 was a prosperous one for the Lutheran Church in America. Five new buildings for educational institutions, involving an outlay of \$300,000, were dedicated; and her net gain was 187 clergymen, 357 congregations, and 52,678 members. The Lutheran Church in America numbers 4,612 clergymen, 7,911 congregations, and 1,086,048 communicants. The following institutions are supported: Twenty-five theological seminaries, 27 colleges, 36 academies, 14 ladies' seminaries, and 57 orphans' homes and other benevolent institutions. There are published 143 periodicals, of which 46 are English, 52 German, 20 Norwegian, 13 Swedish, 4 Danish, 3 Icelandic, 2 Finnish, and 1 French. The following is a *résumé* of the more important events of the year: Three of the general bodies held conventions—the General Synod, the General Council, and the United Synod.

General Synod.—This body, organized in 1821, embraces 23 district synods (almost exclu-

sively English), numbering 951 clergymen, 1,423 congregations, and 151,365 members. The thirty-fourth biennial convention was held in Allegheny, Pa., June 12-21, 1889, and 179 delegates were in attendance. The retiring president, Samuel A. Ort, D. D., President of Wittenberg College, Springfield, Ohio, delivered the opening sermon. Henry W. McKnight, D. D., President of Pennsylvania College, Gettysburg, Pa., was elected president. The work of the convention consisted principally in the consideration of the reports and recommendations of the various boards, by whom the affairs of this general body are managed.

Board of Foreign Missions.—The general secretary, the Rev. George Scholl, D. D., presented the twenty-fifth biennial report. Two missions are supported—one in India, with Guntur as its central station; the other in Africa, with Muhlenberg, Monrovia, Liberia, as its central station. The following statistics afford a general view of the condition of the mission in India: Three ordained missionaries, 2 native pastors, 145 catechists and other native assistants, 335 villages containing Christians, 110 chapels and prayer-houses, 1 printing press and book bindery, 1 reading-room and book depot, 2 zenana mission dispensaries, 12,289 baptized Christians, 137 schools, 174 teachers, and 2,956 pupils. The Watts Memorial College, at Guntur, of which the Rev. L. B. Wolff is president, has 13 teachers and 352 students. The zenana department has 2 women missionaries, 2 native assistants, 14 Bible teachers, and 800 pupils. On Feb. 16, 1888, Mrs. Unangst, wife of the senior missionary, died, having labored in India about twenty years. On Nov. 27, 1889, the Rev. Lemon L. Uhl, Ph. D., returned to India, after spending two years in Johns Hopkins University in a post-graduate course. He was accompanied by the Rev. John Aberly and wife and Miss Amy Sadtler, the newly appointed missionaries of the board. The Muhlenberg mission in Africa is under the supervision of the Rev. David A. Day, who has labored fifteen years in this difficult field, and is now the only ordained missionary engaged there, assisted by an ordained native pastor. On Nov. 20, 1887, Rev. Elias M. Hubler set out for Africa and reached Muhlenberg mission on Jan. 8, 1888. After a year's residence in Africa, and having passed through the acclimating process with the usual result of somewhat reduced health, he returned to the United States. After spending two and a half months in this country, he again sailed for his field of labor, May 4, 1889, accompanied by his wife and daughter and by Mrs. Day and her daughter; but, on Oct. 10, 1889, Mr. Hubler died of fever, thus leaving Rev. Mr. Day again alone in his arduous labors. The mission consists of three congregations, with a baptized membership of 151, and 222 pupils in the schools. The industrial department is flourishing. The 100-acre farm contains 48,000 coffee trees, 13,000 of which are bearing and yield the mission a handsome income, as well as afford employment to a large number of Christians. The missionary has secured an additional farm of 365 acres. The receipts for the work of foreign missions, including a balance of \$8,166.34, have been \$85,813.35, of which the Woman's Missionary Society contributed \$10,552.81 and the Children's Foreign Missionary Society \$2,557,

the Lutheran Publication Society \$1,500, the United Synod of the South \$518.72, and the American Tract Society \$200. The expenditures amounted to \$77,932.47. The receipts already mentioned include also \$1,396.86 received for a steamboat for the Muhlenberg mission, and \$9,509.70 for the Watts Memorial College in India.

Home Missions.—The tenth biennial report of the Board of Home Missions presents the following facts: The receipts amounted to \$73,544.93, including a balance of \$4,629.70; the expenditures were \$72,468.94. During the past two years 114 missions were supported and 131 missionaries employed. Sixteen missions have become self-sustaining. The missions are distributed as follows: Pennsylvania, 20; Ohio, 12; Nebraska, 21; Kansas, 16; Illinois, 7; Maryland, 6; New York and Iowa, each 5; Indiana, Colorado, and California, each 3; Kentucky and Tennessee, each 2; Canada, Connecticut, New Jersey, District of Columbia, West Virginia, Missouri, Dakota, Wyoming, and New Mexico, each 1. Of these 93 are English, 2 English-German, 9 German, and 5 Scandinavian. The present general secretary is the Rev. A. Stewart Hartman, Baltimore, Md., and the western secretary the Rev. Samuel B. Barnitz, Des Moines, Iowa.

Church Extension.—The tenth biennial report of the Board of Church Extension shows that the receipts amounted to \$83,098.40, including a balance of \$3,576.74; the expenditures were \$73,432.71. The assets of the board are \$156,070.59, and the liabilities \$133,320.59. The number of congregations aided in the period embraced in the report was 66. The general secretary, Rev. Harry H. Weber, Baltimore, is prosecuting the work of the board with commendable zeal. Rev. John N. Lenker, of Grand Island, Neb., Western representative of the board, has continued his work in the West. His operations have extended over a vast territory, and have resulted in securing desirable and often valuable lots in new towns. During the past two years he secured 134 lots, and raised for various purposes the sum of \$27,368.

Board of Education.—The second biennial report of this board records the founding of Midland College at Atchison, Kan., and Wayne Academy at Wayne, Neb., as also the aid given to Carthage College, at Carthage, Ill. Midland College was opened on Sept. 15, 1887. The new building in Highland Park was erected by the citizens of Atchison at a cost of \$27,000, the board expending an additional \$1,800 in furnishing the building for use. The receipts of the board during the past two years amounted to \$8,709.96; expenditures, \$8,393.22.

Publication Society.—The assets of the board are \$63,639. During the two years embraced in the report, 8 new books were issued, and new editions of 16 former publications, and 2 volumes were published for the authors.

The new buildings for the use of Pennsylvania College, Gettysburg, Pa., form an important part of the record of the General Synod. At the convention at Omaha, Neb., the erection of a new college building was agreed upon; and a commodious and elegant building, costing \$86,000, was dedicated on Sept. 11, 1889, Gov. James A. Beaver presiding. The dimensions of the building are 69 by 162 feet; the style of architecture

is the classic Romanesque; the material is brick and Hummelstown brown stone. The success of this undertaking is chiefly due to the labors of Henry W. McKnight, D. D., president of the institution. Some time previous to the event just recorded, the Brua Memorial Chapel, costing \$15,000, the gift of Col. John P. Brua, was dedicated. On Sept. 23, 1889, the cornerstone of Hamma Divinity Hall was laid. This building will be for the use of the theological department of Wittenberg College, Springfield, Ohio.

General Council.—This general body, organized in 1867, embraces eight district synods (English, German, and Swedish), numbering 899 clergymen, 1,557 congregations, and 264,235 communicants, exclusive of the German Iowa and the Norwegian Augustana Synods, which are generally represented at the conventions, but are not fully connected with it, numbering 277 clergymen, 457 congregations, and 39,806 members. There are within the bounds of this general body, 2 theological seminaries, 6 colleges, 3 academies, and 17 benevolent institutions. The twenty-second convention was held in Pittsburg, Pa., Oct. 10-16, 1889, and 91 delegates were in attendance, representing eight district synods. The opening sermon was delivered by the retiring president, the Rev. Joseph A. Seiss, D. D., LL. D., pastor of the Church of Holy Communion, Philadelphia. Gottlob F. Krotel, D. D., LL. D., of New York city, was elected president. A large portion of the time of the convention was devoted to discussion of questions pertaining to fellowship. The business of the convention consisted in consideration of reports of committees.

Foreign Missions.—The committee on foreign missions reported the condition of the mission in India, of which Rajahmundry is the central station. The following statistics give a general view of it: Four ordained missionaries (two have since died), 2 native pastors, 7 catechists, 80 teachers, 1,073 pupils, and 2,319 baptized members. The benevolent contributions of native Christians amounted to \$50.03. The receipts amounted to \$12,177.04, and the expenditures to \$11,978.70. During the year a heavy loss was sustained by the death of missionaries Frederick S. Dietrich and William Grønning. This loss has been partially repaired by the sending out of the Rev. Emanuel Edman, M. D. Notwithstanding the serious losses, the mission is flourishing.

Home Missions.—The home missionary operations are carried on by three committees—English, German, and Swedish. The German committee reported that owing to changes in the committee, its work consisted principally in reorganization. Only one mission (in Winnipeg, Manitoba), has been supported, but several theological students have received aid. The receipts amounted to \$1,750.06, and the expenditures to \$1,404.85. The English committee reported, through its missionary superintendent, Rev. William A. Passavant, that during the year 16 missions and 12 missionaries were supported. These missions are located: One in New Jersey, 2 in Ohio, 1 in Illinois, 1 in Wisconsin, 7 in Minnesota, 1 in Dakota, 1 in Washington, 1 in Oregon, and 1 in Utah. The receipts of the committee amounted to \$5,397.89, and the expenditures to \$5,586.24. The Swedish committee reported that the missionary operations

among the Swedes were carried on chiefly by the conferences of the Swedish Augustana Synod. Only a few missions were supported by the general committee, while 150 missions were supported by the conferences. These missions are in nearly every State and Territory of the United States and Canada. The receipts of the general committee amounted to \$1,665.50, of the conferences to \$15,901.63. But this is only a part of the missionary work of this general body, for each district synod carries on its own missionary operations, seven of which supported 127 missions with \$18,534.20. The total amount received for this work was \$43,239.28.

During the year the Philadelphia Theological Seminary of the Pennsylvania Ministerium, the oldest and largest synod in connection with the General Council, was removed from Franklin Street to Mt. Airy, where new buildings were erected on the property purchased at a cost of \$35,000. The new buildings cost about \$50,000, and were dedicated on Oct. 4, 1889, which was also the occasion of the quarto-centennial of the establishment of the seminary.

United Synod.—This general body, organized in 1886, embraces 8 district synods, numbering 195 clergymen, 390 congregations, and 35,185 communicants. There are within the bounds of this body 1 theological seminary, 4 colleges, 4 academies, 5 ladies' seminaries, and 1 orphans' home. This body held its third convention in Wilmington, N. C., Nov. 14-19, 1889. The opening sermon was delivered by the president, Edward T. Horn, D. D., of Charleston, S. C., who was re-elected. The first important business was the consideration of the report of the board of missions and church extension. About \$9,300 were expended for this work. Nearly all the synods were reported as actively engaged in prosecuting the work of missions. Particular attention has been given to the organization of children's missionary societies, and interest in missions among the women of the church has been encouraged.

On the subject of foreign missions, the board reported that it was resolved to begin a mission in the empire of Japan. Repeated efforts to secure a suitable missionary having failed, further action was postponed until after this meeting of synod. It was determined to send out two or more missionaries as early as possible, and the congregation at Salem, Va., pledged \$1,000 per annum for this work. The board was authorized to raise \$6,000 for home, and \$3,000 for foreign missions.

Probably the most important action was the determination to establish a general theological seminary in the South to be opened at Newberry, S. C., in the autumn of 1890. The South Carolina synod is to furnish one professor of theology, and will allow the professors in Newberry College to give instruction in the seminary, on condition that the other synods composing the united synod furnish another theological professor. A board of directors was appointed, and two professors were elected—the Rev. S. A. Repass, D. D., of Allentown, Pa., and Prof. A. G. Voigt, of Thiel College, Greenville, Pa. A board of education was also appointed.

Independent Synods.—The fifteen independent synods number 1,276 clergymen, 2,730 con-

gregations, and 269,743 communicants. It is impossible to present a connected account of the operations of these synods, since they carry on the educational, missionary, and benevolent operations independently of each other. It is worthy of note, however, that most of them are actively prosecuting the various branches of church work, notably the synods of Ohio and Iowa, as also the several Norwegian and other Scandinavian synods, among whom efforts are being made at a general union. The Norwegians dedicated a new theological building in North Minneapolis, Minn., on Sept. 8, 1889, costing about \$50,000, and the German Iowa Synod dedicated a new building for their theological seminary at Dubuque, Iowa, Sept. 18, 1889, which cost about \$30,000.

Statistics.—The latest statistics of the Lutheran Church in America, according to the "The

Lutheran Church Annual," edited by the Rev. S. Erb Ochsenford, published in Philadelphia, are as follows:

GENERAL BODIES.	Organ- ized.	No. of synods.	Minis- ters.	Congre- gations.	Members.
General Synod.....	1821	23	951	1,423	151,365
General Council.....	1867	8	899	1,557	264,235
Synodical Conference..	1872	4	1,291	1,811	365,620
United Synods.....	1886	9	195	390	35,185
Independent Synods..	....	15	1,276	2,730	269,648
Total.....	....	59	4,616	7,910	1,086,048

Literature.—The publications of 1889 include "Lectures on the Augsburg Confession" (Philadelphia), "The Passion Story," by Rev. S. E. Ochsenford (Philadelphia), and "The Lutherans in America," by Edmund J. Wolf, D. D. (New York).

M

MAINE, a New England State, admitted to the Union in 1820; area, 33,040 square miles; population, according to the last decennial census (1880), 648,936; capital, Augusta.

Government.—The following were the State officers during the year: Governor, Edwin C. Burleigh, Republican; Secretary of State, Oramandal Smith; Treasurer, George L. Beal; Attorney-General, Charles E. Littlefield; Commissioner of Industrial and Labor Statistics, Samuel W. Matthews; Superintendent of Common Schools, Nelson A. Luce; Railroad Commissioners, Asa W. Wildes, Roscoe L. Bowers, and David N. Mortland; Chief Justice of the Supreme Court, John A. Peters; Associate Justices, Charles W. Walton, Charles Danforth, William W. Virgin, Artemus Libbey, Lucilius A. Emery, Enoch Foster, and Thomas H. Haskell.

Finances.—The treasury statement for the year is as follows: Cash on hand Jan. 1, 1889, \$272,283.41; receipts during the year, \$5,148,493.92; expenditures, \$5,358,098.92; balance Dec. 31, 1889, \$62,678.41. The receipts, besides the sums received from the sinking fund and from the sale of new bonds, include \$683,144.07 from the State tax on property, \$295,811.60 from the savings-bank tax, \$99,902.81 from the railroad tax and \$24,825.20 from the insurance tax. The expenditures, omitting the payment of State bonds, include interest on debt, \$229,332.83; salaries of public officers, \$70,150; school fund and mill tax paid, \$376,644.27; charitable institutions, support and improvements, \$185,453.84; normal schools, \$31,691.98; Reform School, \$28,491.75; Industrial School, \$11,000.

In accordance with the legislative act mentioned below, the State debt was reduced during the year by the application of the proceeds of the sinking fund to its payment, and the amount then outstanding was refunded into new bonds, nearly all bearing 3 per cent. interest. The debt was thereby diminished from \$3,967,400 on Jan. 1, to \$2,652,300 on Dec. 31, the reduction being \$1,315,100. The funds with which this reduction was made were derived as follows: \$1,235,200 from the sinking fund, \$58,660 from pre-

mium on new bonds issued in June, and \$21,240 from premium on new bonds issued in October. The following is a statement of the refunded debt on Dec. 31: The present bonds issued June 1, and sold at a premium of $3\frac{1}{2}$ per cent., \$1,676,000; 5-per-cent. bonds issued June 1 to the Agricultural College, \$118,300; 4-per-cent. bonds issued Feb. 5, to the Agricultural College, \$100,000; 4-per-cent. bonds issued to the Insane Hospital July 1, \$50,000; 3-per-cent. bonds issued Oct. 1, and sold at 3 per cent. premium, \$708,000; total, \$2,652,300. To this sum should be added \$96,500 of old bonds on which interest has ceased but which have not yet been presented for payment. The State has obtained on the new bonds a lower rate of interest than on the old issues.

A question regarding the constitutionality of the refunding act was raised in March, and submitted by the Governor to the Supreme Court. The following is an extract from the opinion of the court dated April 1:

Article IX, section 14 of the Constitution, declares that the Legislature shall not create any debt exceeding a limited amount named, "except to suppress insurrection, repel invasion, or for purposes of war." The issue of bonds which, by the act of 1889, is to be dated as of June 1, 1889, will vastly exceed the constitutional limit, should it be regarded as a new debt. In our opinion, it can not, in a constitutional sense, be so regarded. It will rather be the old debt in a new form. The issue of bonds soon to mature was originally provided "for purposes of war," and represents a war debt of the State. But the bonds to be issued will just as much represent the war debt as do the bonds to be retired.

The total assessed valuation of the State for 1889 was \$242,039,614, an increase of \$14,008,958 since 1880. Upon this sum a State tax of $2\frac{3}{4}$ mills was levied for the year, 1 mill of which is devoted to public schools.

Under the act of this year providing for an enlargement of the State-house, the commissioners had made contracts for portions of the work aggregating \$139,872.47 before the end of December. Under the law offering a bounty of \$5 on each bear killed the State paid out during

the year \$1,950, and a similar bounty of 10 cents for every crow killed cost the State \$2,095.20.

Legislative Session.—The sixty-fourth session of the Legislature met on Jan. 2, and adjourned on March 13. United States Senator William P. Frye was re-elected, receiving a unanimous vote in the Senate and 121 votes in the House. The Democratic candidate, Harris M. Plaisted, received 25 votes in the House. George L. Beal was elected State Treasurer for two years. An act was passed to prevent the formation of "trusts," containing the following provisions:

1. It shall be unlawful for any firm or incorporated company, or any number of firms or incorporated companies, or any unincorporated company or association of persons or stockholders, organized for the purpose of manufacturing, producing, refining, or mining any article or product which enters into general use and consumption by the people, to form or organize any trust, or to enter into any combination of firms, incorporated or unincorporated companies, or association of stockholders, or to delegate to any one or more board or boards of trustees or directors the power to conduct and direct the business of the whole number of firms, corporations, companies, or associations which may have, or which may propose to form a trust, combination, or association inconsistent with the provisions of this section and contrary to public policy.

2. No certificate of stock, or other evidence of interest in any trust, combination, or association, as named in section 1 of this act, shall have legal recognition in any court of this State, and any deed to real estate given by any person, firm, or corporation for the purpose of becoming interested in such trust, combination, or association, or any mortgage given by the latter to the seller, as well as all certificates growing out of such transaction, shall be void.

A fine, varying from \$5,000 to \$10,000, is imposed for violation of this act. The Secretary of State is required to send to each corporation in the State a letter of inquiry whether such corporation is a part of any trust, and on the failure of some officer thereof to answer under oath, the courts are authorized, on proof of such refusal, to declare and order such corporation dissolved.

An act to prevent bribery provides that "whoever shall offer, or promise, or agree to receive any money or other valuable consideration for giving in his vote at any legal election, and shall, in accordance with such offer, promise, or agreement, give in his vote at such election, shall be fined not more than \$100, or imprisoned not more than one year, and shall be excluded from the right of suffrage for a term of ten years."

The hawk and peddler law, passed at this session, forbids any person from going about offering for sale products other than those grown or manufactured in the United States; and no person can offer for sale in this way domestic products until he has obtained a license, which is only to be issued to citizens of the United States.

The Governor is directed to appoint a commission of sixteen persons, one from each county, to prepare a full, equal, and just valuation of the State, and an enumeration of the polls, as a basis of taxation for State purposes, and to report at the session of 1891.

The act of 1887 relative to the State debt accruing in June and October of this year was re-

pealed, and a new law was provided, which leaves indefinite the amount of new 3-per-cent bonds to be issued and permits them to bear interest from June and from October, according as they replace the one or the other part of the accrued debt. Any or all bonds in the sinking fund may be sold to pay the debt accruing Oct. 1. The existing rate for the State tax, 2½ mills, is continued for 1889, but reduced to 2¼ mills for 1890. To meet the wants of the treasury, a temporary loan of not more than \$300,000 may be negotiated by the Treasurer. The sum of \$150,000 was appropriated to enlarge and alter the State-house, and \$100,000 for two additional buildings at the Maine Insane Asylum to accommodate 100 patients each. A commission was created to select and purchase a site near the city of Bangor for a new asylum called the Eastern Maine Insane Asylum, and \$25,000 was appropriated therefor. The State Reform School received \$27,000 for improvements. The sum of \$60,000 for 1889, and \$65,000 for 1890, was appropriated for pensions to invalid soldiers, soldiers' widows and orphans, and the dependent parents and sisters of soldiers. Other acts of the session are found below:

Prohibiting the gift or sale of cigarettes to persons under sixteen years of age by any but parents and guardians.

Providing that tramps shall be imprisoned in the county jail not less than sixty days and employed in breaking stone ten hours each day.

Incorporating the cities of Deering and Brewer and providing for the annexation of the former to Portland.

Changing the time for the meeting of presidential electors from the first Wednesday of December to the Saturday before the second Monday of January following a presidential election.

Abolishing in divorce cases decrees *nisi*, which become absolute in six months on application of either party to the clerk of the court.

Punishing by fine of not over \$100 or imprisonment not over one year any parent or other person in charge of a child who cruelly treats the child by abuse, neglect, overwork, or extreme punishment.

Requiring that all lard not made wholly of the pure fat of swine shall, when offered for sale, be plainly labeled as compound lard.

Authorizing towns and cities to raise money for the support of evening schools, in addition to the sum raised for common schools.

Adding the word "sailors" to the act providing that soldiers of the late war who have become dependent for support upon any town shall not be considered as paupers or lose their right of franchise thereby, and providing further that such dependent soldiers or sailors shall be supported outside of the almshouse.

Requiring all adulterated wheat or graham meal to be labeled "compound wheat meal."

Providing that whoever labors in manufacturing railroad ties and ship knees, or is engaged in cooking for persons engaged in such labor, or furnishes a team for the hauling of such railroad ties or ship knees, shall have a first lien on the same for thirty days after delivery of such ties on the railroad or such knees in the ship yard.

Requiring all towns to furnish school books at their own expense for pupils in the public schools.

Repealing the act exempting Masonic, Odd Fellows, and other relief organizations from the operations of the statutes relating to life insurance.

Offering a bounty of ten cents each on crows killed between March 31 and Nov. 1 of each year.

Prohibiting discrimination in favor of individuals between insurants of the same class.

Providing for the preservation of local histories and reports of town or city or county officers.

Providing that all domestic vessels shall be subject to a lien for debts contracted and advances made for labor and materials necessary for their repair, provisions, stores, and other supplies necessary for their employment, and for the use of a wharf, dry dock, or marine railway, such lien to continue two years after the debt was contracted or the advance made.

Revising and making more stringent the regulations of the lobster fisheries.

Providing that whoever by threats, intimidation, or force, alone or with others, prevents any person from entering or continuing in the employment of another person, firm, or corporation, shall be punished by imprisonment not over two years or by fine not over \$500.

Declaring an impression made on a document by the seal of a corporation without the use of any adhesive substance a valid seal.

Creating a State cattle commission of three members, to be appointed by the Governor and holding office at his pleasure.

Raising the age of consent in females from thirteen to fourteen years.

To prevent the spread of small-pox by providing that no person shall be employed in a paper mill who has not been successfully vaccinated or revaccinated within two years.

Providing for the establishment and regulation of fraternal beneficiary corporations.

Providing for the incorporation of life or casualty insurance companies on the assessment plan.

To forbid heating by common stoves and lighting by naphtha in railroad cars, and requiring all heating apparatus to be first approved by the railroad commissioners.

Imposing a penalty upon creditors who fraudulently consent to a debtor's discharge, receiving therefor directly or indirectly a preference.

Amending the law of liens on lumber by adding a clause giving a lien thereon to those who labor in shoeing horses or oxen or in repairing property employed in cutting, hauling, rafting, or driving logs or lumber.

Amending the law of descent so that upon failure of lineal descendants of the deceased, his or her property shall descend to the father and mother in equal shares, instead of to the father alone, as previously, or if no father is living, then half to the mother and half to the brothers and sisters and their heirs, instead of equally to the mother and each brother and sister.

Education.—The annual report of the State superintendent for the school year 1887-'88, published in May, 1889, shows the total number of children of school age to have been 212,156, a decrease of 465 from the year preceding; number enrolled in the public schools, 144,258, a decrease of 1,503; average length of the school year, 22 weeks and 2 days; number of schools, 4,793, an increase of 34; average monthly wages of male teachers, \$34.36; of female teachers, \$16.92; number of school houses, 4,337 (of which 77 were built during the year); value of school property, \$3,328,743; total expenditure for schools during the year, \$1,224,561; amount of the school fund and mill tax apportioned by the State to the counties for schools, \$372,703.89. The number of towns that had adopted the unit or town system of school government was 113, an increase of 13 over the previous year; the number of school districts in the State was 3,424, an increase of 115. The number of towns electing supervisors was 316, an increase of 13; electing school committees, 183, a decrease of 13. During the year 176 free high schools were supported, 126 by towns and 50 by districts. Dur-

ing the eight years since the re-establishment of the system in 1880 the growth of these schools has been almost phenomenal. The compulsory school law of 1887 is reported to be defective and unsuited to its object. For the school year 1888-'89 the total number of children of school age was 211,453, and the amount of the school fund and mill tax apportioned by the State, \$380,767.85.

Prisons.—The whole number of prisoners in county jails during the year ending Nov. 30 was 3,957. There were, however, only 347 in confinement at the beginning of the year, and 445 at its close. In six of the sixteen jails regular labor is required of the prisoners. At the State Industrial School 25 girls were received during the year, and the same number dismissed. There were 61 inmates remaining in December. The State Prison and the Reform School contained about the same number as in 1888.

Charities.—At the State Insane Hospital there were remaining on Dec. 1, 1888, 578 patients—299 men and 279 women. During the year following, 225 patients were received and 223 discharged, leaving, on Dec. 1, 1889, 295 men and 285 women. The percentage of recoveries, based upon the number under treatment was 8.90. The disbursements for support of the institution were \$146,893.33, and for new buildings, \$54,595.96. In November the commissioners appointed to select a site for the proposed Eastern Maine Insane Hospital reported that they had purchased a site in Bangor, near Penobscot river, for \$20,000.

Pensions.—The annual report of the State pension agent shows 1,740 applications for aid, of which 1,330 were allowed. The appropriation of \$60,000 was all expended, the average amount paid each pensioner monthly being \$3.82. In 1888 there were 1,200 applications, and 859 pensions allowed.

Railroads.—The Railroad Commissioners report that on Nov. 30 there were 1,356.19 miles of railroad in the State, against 1,191.72 on the same date in 1888. During the year the additions to the Canadian Pacific road were completed, extending 145 miles in the State. This construction completes the Canadian Pacific system from the Pacific to the Atlantic Ocean. Reports from the companies show a general and healthy increase of both gross and net earnings.

Labor Statistics.—The Bureau of Labor Statistics devoted its attention mainly to an investigation of the ship-building, quarrying, and lime industries. Its report shows that the ship yards of the State have shown more activity than at any time since 1883. The number of ship yards in operation has been 41, and the average number of workmen employed 1,967. The tonnage built and launched was greater than in any other year since 1883. Wages at Bath were higher than at other ship yards in the State.

The number of men in the granite industry was about 4,000.

The number of lime kilns in operation in 1888 was 90; in 1889, 94. The number of casks of lime manufactured in 1888 was about 1,800,000, and the net value of the product about \$1,500,000. The average weekly wages of workmen were found to be about \$12.50. For 1888 the bureau makes the following report concerning

mill and factory operatives: "In shoe factories the weekly earnings of men are \$11.17; of women, \$8.50; 15 per cent. of the operatives own their homes. In cotton mills the weekly earnings of men are \$8.46; of women, \$5.88; 1½ per cent. of the operatives own their homes. In woolen mills the men earn \$9.18 a week; the women, \$7.17; 15 per cent. of the operatives own their homes."

MANDOLIN, a musical instrument. It is almond-shaped, with strings, and is also described as resembling the half of a pear split lengthwise. It derives its name from the Greek *μανδολίνα*, and is the ancient form of the lute known to the Egyptians for fifteen centuries before the Christian era. Its origin is traced to the cetare, either, or zither ancestry of all stringed instruments, including the clavichord and the piano. It is chiefly retained in use by the Neapolitans and Milanese of Italy. It has been known by the other names of mandola, bandourina, pandourin, and tandourin. The bandourina was flat. The Neapolitan instrument has four strings. The mandolin of Milan is rarer,



THE MANDOLIN.

and has five strings. The mandolin has an open, hollow, wooden body, with a convex back, a neck, a finger-board, and seventeen frets. It is tuned like the violin, in fifths, and has overspun strings. The tones are made by touching the strings with a plectrum of tortoise-shell, horn, or ostrich or whalebone; while the modulations are effected by the fingers of the left hand. Beethoven wrote a sonata for this instrument; and the serenade of "Don Juan" was originally written for the mandolin.

MARINE CONFERENCE, INTERNATIONAL. On Feb. 2, 1888, the Hon. Perry Belmont introduced in the House of Representatives a resolution recommending a bill that authorized the Government to invite delegates from different countries to unite with American delegates in an International Marine Conference, to be held in Washington. This bill became a law on July 9, 1888, and its execution was placed in charge of the Department of State, an appropriation of \$20,000 being made. The Conference was designed to revise and amend the rules, regulations, and practice concerning vessels at sea and navigation generally, and the international code of flag and night signals; to adopt a uniform system of marine sound signals, or other means of plainly indicating the direction in which vessels are moving in a fog, mist, or falling snow, and in thick weather or at night; to discuss the various systems employed for the saving of life and property from shipwreck; for reporting, marking, and removing dangerous wrecks or obstructions to navigation; for designating ves-

sels, for conveying to mariners and others warnings of approaching storms, of danger to navigation, of changes in lights, buoys, and other marks; and to make other important regulations for the prevention of collisions and other avoidable disasters. The final conclusions of the Conference were to be submitted to all maritime nations for ratification. These subjects were divided into the following branches, for convenience:

1. Rules of the road at sea.
2. International signals.
3. Life-saving stations, methods, and appliances.
4. Storm-signals.
5. Obstructions to navigation on the high seas.
6. Lights, buoys, and beacons.
7. Qualifications of officers.
8. Color-blindness.
9. The use of oil.
10. Ocean lanes.

It was decided that the Conference should assemble at the invitation of the President. The invitations were sent to all the countries of the world, and nearly all accepted the invitation.

England hesitated at first, and the date of the Conference, which was fixed for April 19, 1889, was postponed until Oct. 16, England having finally decided to be represented. The invitations expressly provided that no questions relating to the regulation of trade or commerce were within the scope of the discussion; and that, in the disposi-

tion of any questions that might be presented to the Conference, no state should be entitled to more than one vote, no matter what might be the number of delegates representing it.

To illustrate the extent and importance of the interests involved in this Conference, it may be said that the statistics of 1881 showed the number of vessels existing of over 100 tons to be 54,976, of which 6,392 were steamers. The total tonnage of the world was 20,646,000, and the number of seamen 1,693,000; the total value of shipping and merchandise annually carried at sea was \$7,000,000,000; the annual loss of life by marine casualties was estimated at 5,400; and the value of ships and cargo lost was about \$230,000,000. In 1881 the number of vessels missing was 101; sunk by collision, 205; burned, 229; stranded, 1,108; water-logged, etc., 550; total number lost, 2,193—about 800,000 tons. Since 1881 the annual loss has increased.

The American delegates to the Conference met in the diplomatic reception room at the State Department on March 25, 1889. This delegation included Rear-Admiral Samuel R. Franklin, U. S. N.; Capt. William T. Sampson, U. S. N.; Sumner I. Kimball, Superintendent of United States Life-Saving Service; Capt. James W. Norcross, of Massachusetts, representing the Merchants' Sailing Marine; Capt. John W. Shaekford, of Pennsylvania, Superintendent of the Red Star Line; William W. Goodrich, a maritime lawyer of New York; and Clement A. Griscom, of Pennsylvania, President of the International Navigation Company. Lieut. S. A. Stanton,

U. S. N., was appointed temporary secretary. This meeting was simply for the organization of the American delegation, and to establish a central point for the reception of communications, etc. On Oct. 16, 1889, the delegates to the Conference assembled at the State Department, and the Secretary of State James G. Blaine welcomed them in a brief address. On motion of Charles Hall, a member of the British delegation, Rear-Admiral Samuel R. Franklin, U. S. N., was elected president of the Conference. The following is a list of the delegates who took part in the proceedings, not including those of the United States delegation, already given:

Austria-Hungary.—Baron Hermann de Spaun, rear admiral Imperial Royal Navy.

Belgium.—Theodore Verbrugghe.

Brazil.—Capt. Luiz Felipe de Saldanha de Gama and Capt. Joachim Antonio Cordovie.

Chili.—Rear-Admiral Viel and Lieut. Ricardo Beaugency.

China.—Capt. A. M. Bisbee, Commander Chen Ngan Tao, and Lieut. Chia Guy She, all of the Chinese navy.

Denmark.—J. A. Garde, A. Schneider.

France.—The naval *attaché* of the French Embassy at London, Capt. Lanneluc; M. Vetillart, Engineer-in-Chief of Bridges and Roads; M. Ribiere, engineer of the first class; M. Weil, Judge of the Tribunal of First Instance of the Seine.

Germany.—Dr. Sieve King, President of the Supreme Court of Hamburg; Capt. Mensing, German navy; August Feigel, Consul-General of Germany at New York; Privy Councillor Donner, retired captain German navy; Auten Sanchez de la Gorda, lieutenant in the Imperial Navy.

Great Britain.—Charles Hall, Q. C., M. P.; Admiral Sir R. Molyneux, K. C. B.; Admiral Bowden-Smith; Admiral Sir George Nares, K. C. B.; Thomas Gray, assistant secretary Marine Department, Board of Trade; Capt. H. W. Yatt, Peninsula and Oriental Steam Ship Company; Capt. Kendall, Dublin Steam Packet Company; Cecil A. Spring Riee.

Guatemala.—Fernando Cruz, Minister of Guatemala at Washington.

Hawaii.—H. A. P. Carter, Minister at Washington.

Honduras.—Dr. Don Jeronimo Zelaya, representative of Honduras at Washington.

Italy.—The Chevalier Raphael Settembrini, captain in the Royal Navy.

Japan.—P. Tenkaha, Imperial Department of Communications; Lieut. R. Baba, I. N., naval *attaché* to Japanese Legation at Washington.

Mexico.—Señor Don Matias Romero, Mexican Minister at Washington; Señor Don Angel Ortiz Monasterio, commodore in the Mexican navy.

Nicaragua.—C. Choynez.

Norway.—P. T. Selvesen, captain in the Norwegian Royal Navy; S. W. Flood, agent of the maritime insurance companies in New York.

Portugal.—Thomas de Sanze Rosa.

Russia.—Vice Admiral Kauzuskoff.

Spain.—Señor Don Jacobo Varolo, President of the Spanish Marine Commission in New York; Don Baldomero Vega, lieutenant in the Spanish navy.

Sweden.—T. S. Malmberg, Chief of the Nautical Meteorological Bureau, captain in the Royal Navy.

Siam.—Frederick William Verny, of the Siamese Legation in London.

Netherlands.—D. Hubert, captain in the Steam Navigation Company; J. H. Van Steyne, commander in the Netherlands Royal Navy; and G. de Weckherlin.

Venezuela.—Señor Alessandro Urbaneja; Señor Nicola Bolet Perazo; Señor Francisco Antonio Silva, *Chargé d'Affaires* of Venezuela at Washington; Señor Jose Audrade.

Uruguay.—Dr. Alberto Nin.

Lieut. Vincenden Cottmann, U. S. N., was elected permanent secretary. The Conference fairly began work on Oct. 17, and from that time to the close of the year met every day, excepting occasional rests of two or three days. Most of the work was done by committees, who discussed the subjects in their charge and reported thereupon to the Conference, when the report was accepted or rejected by a vote of the countries. The meetings were held at the Wallach House. Additional secretaries were Hon. Cecil A. Spring Rice, of the English delegation; Charles Ribiere, France; and Walter Blace, Germany. In the beginning of the Conference the British delegation announced their intention, under instructions from their Government, to confine their share in the discussions to two subjects—marine signals and the draught to which vessels should be restricted when loaded. (Afterward these instructions were rescinded, and the British delegates took part in all the discussions.) This delegation further announced that Her Majesty's Government would not consider as binding any of the regulations or conclusions adopted by the Conference. Standing committees were appointed from time to time, to consider the various subjects before the Conference.

The first positive action of the Conference established that "Every steam vessel which is under sail or being towed, and not under steam, is to be considered a sailing vessel; and every steam vessel which is under steam, whether under sail or not, is to be considered a vessel under steam."

The next was a vote on a proposition to provide additional lights for towing steamers, in the form of an amendment providing "That a small bright light abaft the funnel or after mast may be carried for the vessel being towed to steer by, such light to be only visible from dead astern to four points on each quarter." This amendment was adopted.

An amendment to the rules, which was adopted, provides that in thick weather a sailing ship under way "shall make with her fog horn, at intervals of not more than one minute, when on the starboard tack, one blast; when on the port tack, two blasts in succession; and when with the wind abaft the beam three blasts in succession." It was also held that the proviso in the rules should be continued which directed that "signals should be sounded by a bellows or other mechanical means." In all cases where the regulations require a bell to be used, a drum will be substituted on board Turkish vessels. This was in accordance with the religious principles of the Turks, who object to the use of bells. The other new rules and amendments adopted were these:

Side lights, red and green, shall be placed in steam vessels not forward of the masthead light, and in sailing vessels as near abreast the foremast as practicable.

Every ship, whether a sailing ship or a steamship, shall in a fog, mist, falling snow, or during heavy rainstorms, go at a moderate speed, having careful regard to the existing conditions and circumstances; and a steam vessel hearing apparently before her beam the fog signal of a vessel, the position of which is not ascertained, shall, so far as the circumstances of the case admit, stop her engines and then proceed with caution until danger of collision is over.

A ship which is required by these rules to keep out of the way of another ship shall, if the circum-

stances of the case admit, avoid crossing ahead of the other.

Any ship coming up with any other ship from any other direction more than two points abaft her beam, or in such a position with reference to the vessel she is overtaking that at night she would be unable to see either of the vessel's side lights, shall be deemed to be an overtaking ship; and any subsequent alteration of the bearing of the two ships shall make the overtaking ship a crossing ship within the meaning of the regulations or rules, or of the duty of keeping clear of the overtaken ship until she is finally past and clear of her. As by day the overtaking ship can not always know with certainty whether she is before or abaft this direction from the other ship, she should, if in doubt, assume that she is an overtaking ship, and keep out of the way.

In clear water no vessel shall attempt to cross the bows of the leaders of any squadron of three or more ships in regular formation, nor unnecessarily pass through the lines of such squadrons. This was offered by the delegates from Great Britain; the powers voting against it were France, Sweden, the Netherlands and the United States.

When approaching a vessel to put a pilot on board, or when there is risk of collision with another vessel, a pilot vessel shall have on hand two lights, one red and one green, so constructed that they can be flashed instantaneously, which should be kept either in their places screened or on deck at their respective sides of the vessel, always ready for use, and shall flash one of them in order to show the direction in which she is heading in sufficient time to prevent collision.

A pilot vessel of such a class as to be obliged to go alongside a vessel to put a pilot on board, may show a white light instead of carrying a white light at the masthead. Such vessel shall also not be obliged to carry the side lights proposed for the larger pilot vessels, but in this case she shall have ready at hand a lantern with a green glass on the one side and a red glass on the other side, and on approaching a vessel to put a pilot on board, or on approaching to or being approached by a vessel, such lantern shall be exhibited in sufficient time to prevent collision.

All vessels under steam, when engaged in trawling, shall carry on or in front of the foremast, and in the same position as the white light which other steam ships are required to carry, a lantern showing a white light ahead, a green light on the starboard and a red light on the port side, such lantern to be so arranged as to show an unbroken white light over an arc of the horizon of four points of the compass, an unbroken green light over an arc of the horizon of ten points, and an unbroken red light over an arc of the horizon of ten points, and it shall be so fixed as to show the white light from right ahead to two points on the bow on each side of the vessel, the green light from two points on the starboard bow to four points abaft the beam on the starboard side, and the red light from two points on the port bow to four points abaft the beam on the port side. Such vessels shall also carry a white light in a globular lantern, so constructed as to show a clear and unbroken light all around the horizon, the lantern containing the white light to be carried lower than the lantern showing the green, white, and red lights, as aforesaid; so, however, that the actual distance between them shall not be less than six feet nor more than twelve feet.

All sailing vessels of fifty tons gross tonnage and upward, engaged in trawling, shall carry a white light in a globular lantern, so constructed as to show a clear and unbroken light all around the horizon, and also a sufficient supply of red pyrotechnic lights, which shall each burn for at least thirty seconds, and shall, when so burning, be visible for the same distance under the same conditions as the white light. The white light shall be shown from sunset to sunrise, and one of the pyrotechnic lights shall be shown on approaching or being approached by another vessel, in sufficient time to prevent collision. All lights mentioned above shall be visible at a distance of two miles.

Sailing vessels of less than five tons gross tonnage, engaged in trawling, shall not be obliged to carry the white light mentioned in the above paragraph; but if they do not carry such light they shall have at hand a lantern showing a bright white light and exhibit it where it can best be seen in sufficient time to prevent collision; and instead of showing a red pyrotechnic light, they may show a flare-up light.

All sailing vessels of five tons gross tonnage and upward, engaged in trawling, having their trawl in the water, and not being stationary in consequence of their gear getting fast to a rock or other obstruction, shall carry from sunset to sunrise a white light in a lantern so constructed as to show a clear and unbroken light all around the horizon.

That the minimum power only of each such light should be definitely fixed, leaving it to the judgment of the parties responsible for fitting out the ships with proper lanterns, to employ lamps of this or of higher power. The use of incandescent lamps to be permitted; the use of arc lights to be at present excluded for all purposes other than signaling and search lights.

Each lantern must be so constructed that the minimum power of light is to be found at every point where the light is to be visible after the lamp has been fitted with proper screens.

That the lanterns shall be so constructed as to insure the light having at least the required minimum power in the ideal line connecting the lantern with the horizon, even though the ship be heeled one way or the other ten degrees, or any number of degrees decided by the Conference.

That the color of the glasses by which the coloring of the light is to be produced be so chosen, if possible, that the lights retain their distinctive color even in a fog.

That no detailed description should be internationally adopted for the construction of the lamp or lantern, so that a fair chance be given inventors to produce serviceable articles.

A steam vessel when towing another vessel shall, in addition to her side lights, carry two bright white lights in a vertical line, one over the other, not less than six feet apart; and when towing more than one vessel shall carry an additional bright white light six feet above or below such light.

A steam vessel or a sailing vessel, when towing, shall, at intervals of not more than two minutes, and the vessel towed may, sound on the whistle, siren, or fog horn three blasts in succession—one prolonged blast followed by two short blasts.

A steam vessel wishing to communicate to another, "The way is off my ship: you may feel your way past me," may sound on her whistle or siren three blasts, viz., short, long, short—with intervals of one second between them.

A ship under way, which is unable to get out of the way of an approaching vessel through not being under command, or unable to manoeuvre as required by the regulations, shall, on hearing the fog signal of an approaching vessel, sound in answer on her whistle, siren, or fog horn four short blasts.

A ship employed in laying or picking up a telegraph cable shall, on hearing a fog horn sounded, on approaching to or being approached by another vessel, sound in answer her whistle, siren, or fog horn three prolonged blasts in succession.

Every ship may, if necessary, in order to attract attention, in addition to the lights which she is by these regulations required to carry, show a flare-up light, or use any detonating signal which can not be mistaken for a distress signal.

Pilot vessels wishing to offer pilotage to other vessels shall be provided with a special signal.

The establishment of a universal maximum load-line, which was one of the subjects in which the British delegation took the most interest, was defeated in committee.

On the subjects of construction and equipment

of vessels, discipline and sufficiency of crew, and inspection of vessels, the committee reported—

That, on the subjects contained in the sections of this division, no international rule could be made which would secure beneficial results. It is thought that the Conference would be limited in each case to a recommendation fixing a minimum for the objects which it is desired to secure under each of these sections. If such a minimum were made the legal requirement, it would have an injurious effect upon the present standard of efficiency in many countries. In other countries, where such efficiency does not exist, it is thought that it will be best secured by the same means which have secured it elsewhere, leaving each nation to modify such means in ways which will best adapt them to the particular methods of the respective governments.

Again, it is found that the present rules existing in different countries upon several of these questions are different in many respects, although probably equally efficient. It would therefore become necessary, in forming an international rule in such cases, to recommend changes in the existing rules of several countries, which to some of them might be impracticable. This is thought to be undesirable. However, the committee earnestly recommend that—

All vessels, whether propelled by steam or sail, should possess a margin of strength over and above that which is required to enable them to perform the work for which they were designed and built.

A chain, a bridge, or any other structure, the failure of which would entail the loss of human life, invariably has a considerable reserve of strength provided—in other words, the admitted working load is always much less than the computed strength, or the strength ascertained by actual test. Certainly it is no less important that the hull of a vessel should contain a similar reserve. Therefore, to obtain as much as seems to be practicable in this direction, it is desirable to rely upon efficient and oft-repeated inspection, when, upon the least indication of distress or of rupture showing, very substantial additions should be made before the vessel is allowed to again proceed to sea. Ocean-going steam vessels which carry passengers should be additionally protected by having efficient bulkheads so spaced that, when any two compartments be filled with water, the vessel will still remain in a seaworthy condition, and two at least of the amidships bulkheads should be tested with water pressure to the height of the deck next above the water line.

Every man or boy going to sea as a seaman, or with the intention of becoming a seaman, should be examined for visual power and color-blindness, and no man or boy should be permitted to serve on board any vessel in the capacity of seaman, or where he will have to stand lookout, whose visual power is below one-half normal, or who is red or green color-blind.

Every man who shall qualify as an officer of a registered vessel after the adoption of these rules, except engineer officers, shall be required to have a certificate that he has the necessary visual power, and that he is not red and green color-blind. He shall also have a certificate that he is familiar with the regulations for preventing collisions at sea, and with the duties required of him in co-operating with a life-saving station in case his vessel is stranded.

Each country shall provide means which shall enable any boy or man intending to go to sea to have his eyes examined for visual power and color-blindness, and to obtain a certificate of the result; also to enable the master of any vessel to have the eyes of any of his crew tested for the same purpose. It is the opinion of the committee that defective visual power and color-blindness are sources of danger at sea—the first both by day and night, because of the inability of the short-sighted to see objects at a sufficient distance. Color-blindness is a source of danger, more especially at night, because of the inability of a color-blind person to distinguish between the red and green lights. The inability on the part of an officer or lookout to

distinguish the color of buoys may be a cause of accident in broad daylight.

It is the opinion of the committee, however, that tests for these defects need not be enforced in the cases of masters and mates who already occupy such positions.

The committee purposely avoids making any recommendation as to the methods to be used in making such tests for visual power and color-blindness, or in conducting the necessary examinations for officers. It is thought that the desired objects will be best secured by leaving each country to employ the methods which may seem most suitable.

As to the use of oil and the necessary apparatus for its use, the committee reported that there need be no longer any doubt that the proper application of oil is efficacious on the open sea, but that there are conditions under which the action of breaking waves is not thereby much, if at all, modified. Its effect on the surf over bars at the mouths of rivers and those lying off beaches is especially doubtful. The committee was of the opinion that all vessels should be supplied with a proper quantity of either animal or vegetable oil (both of which seem to be more effective on the waves than mineral oil), and with appliances for its distribution.

Concerning uniform inspection, the report said that, if the maritime nations should agree upon uniform requirements with respect to life-saving apparatus to be carried on board ship and as to the use of oil and the necessary apparatus for its use, uniform inspections might, perhaps, be advantageous; but it would be impossible to formulate an adequate system for this purpose without knowing definitely what those requirements might be; and even then it would be doubtful, considering the great diversity of administrative methods and machinery in different countries, whether any practical system could be devised that would be acceptable to all.

In the absence of any full report from the Conference, it has been only possible in this article to indicate briefly a portion of the work absolutely completed by it. The reports of committees were in some instances adopted as they stood, leaving the existing maritime regulations practically unchanged.

MARITIME EXHIBITION. Since the decline of American shipping began as a forerunner of the civil war no year has afforded so many encouraging signs of a revival as 1889. From Jan. 30, till Feb. 1, the American Shipping and Industrial League was in session at Washington; on Oct. 15, the International Marine Conference met in that city, and the year closed with the Maritime Exhibition in Boston, which began on Nov 4 and remained open two months. The American Shipping League was formed in 1886 as the result of a chance conversation between four acquaintances in the St. Charles Hotel, New Orleans. The present year saw it for the first time completely organized with representatives from many States and Territories, and a goodly attendance of delegates at the national convention. (See MARINE CONFERENCE.) Various and successive incidents have led up to the preliminaries pointing to a revival of the shipping interests. First among them may be mentioned the reconstruction of the navy, begun under the administration of one of the great political parties, continued under the rival organization, and

resumed by the first party on its return to power. The general question is now favored by partisans of both sides. When this reconstruction was begun, many of the materials had to be imported; but the offer of fair encouragement from the Government produced the necessary machinery, and now the heaviest of armor plates can be made in American works. That the American genius for ship-building was not lost during its long period of comparative disuse was singularly proved by the result of the three international yacht races of 1885, 1886, and 1887. No American had ever designed or built a vessel of the class called for in the first of these races; but when the necessity arose, a design was made, and within a few months a vessel was built that defeated one of the best specimens of British handicraft, representing the results of a generation of costly experiment and calculation. So it was in each of the succeeding years. Every foreign improvement was out-matched by the American designer, Edward Burgess, of Boston. In connection with these incidents may be mentioned, as bearing in favor of American shipping, the Pan-American Congress, the proposed establishment of a naval reserve, and the equipment of school-ships by the General Government and by the State of New York, which State also purposes the establishment of a naval militia. Add to these novel features introduced by yacht clubs—notably the Corinthian and Seawanhaka clubs of New York—looking to practical instruction in navigation and seamanship, also lectures by experts to members of these same clubs, and it is evident that the Boston exhibition was in sympathy with a popular reawakening of the nautical instinct.

New England was the birthplace of ship-building and seamanship, and it was eminently proper that Boston should take the initiative in a practical showing of what American ship-builders and sailors can do, even after nearly a generation of decadence. It is claimed that the present exhibition was the first of its kind ever held, but the Fisheries Exhibition in London in 1883 was so nearly like it in general purpose and design that it should hardly be ignored. The Boston exhibition, however, was broader in scope, and its projectors are entitled to all credit for their originality and enterprise. The fair was held in the Mechanics' Building, in the handsome new district of the city covering what was once a marshy tract known as the Back Bay. The four principal divisions of the exhibition were: 1, the basement, containing heavy machinery, buoys, metal castings, and the like; 2, the music room, with a completely rigged and full-sized model of the schooner yacht "Quickstep," surrounded by small models from the National Museum, cordage, and the like; 3, the main hall, with its galleries devoted to models from building-yards, photographs, charts, boats of all kinds, and specimens of blocks, cordage, rigging, etc.; 4, the fine-art gallery, containing a large number of paintings relative to the sea and its life, and including "portraits" of many famous men-of-war and merchantmen. The sub-classification was elaborate and need not be repeated here.

A conspicuous feature of the basement was a canal about twenty feet wide and five hundred

feet long, surrounding a parallelogram whence spectators could witness the manœuvres of small boats, naphtha and steam launches, and other machine-driven craft which were afloat in great variety. Among the most important objects in this department were the capstans, windlasses, and similar machinery shown by the American Ship Windlass Company of Providence, including the most powerful steam windlass ever constructed for use on shipboard. Here, too, were boilers of nearly all the latest and most approved types, anchors, huge buoys from the United States Light House Board, and scores of heavy castings suggestive rather of the machine shop than of the ship. Among these engines representing centuries of patient scientific study, was a modern specimen of ship carpentry highly interesting as an example of American ingenuity, namely, a clinker-built boat about forty feet long, built by shipwrecked mariners—Joshua Slocum and his two sons—near Paranagua, South America, nearly 7,000 miles from New York. In this craft Capt. Slocum and his family, including his wife, made the voyage home in safety. The vessel was built with only the ordinary tools of a carpenter's outfit which had been saved from the wreck; and while the father and his sons worked at ship-building, the mother made the sails, which were finished when the vessel was ready to launch. This achievement and the voyage that followed are among the practical romances of modern times and are far more worthy of fame than the unnecessary and therefore silly attempts made from time to time to cross the Atlantic in small sail boats.

In the music room the most commanding object was the model of the schooner yacht already referred to, a beautiful specimen of ship-builder's skill in the direction of artistic finish, which modern yachtsmen call for. Almost alongside of her was a section of hemp cable twenty-eight inches in circumference, such as was used by warships in the days of Perry and Decatur, early in the present century.

One of the most important discoveries of late years, commercially speaking, is the fact that a steam engine that is not powerful enough to propel a vessel if fitted on board in the usual way, can tow two vessels like her if unshipped and set up on board a launch or tug. A large number of barges are now building suited for the coal trade, and intended to be towed in fleets of four or five by a single tug. Hitherto this trade has been confined to old canal barges, and has proved so profitable that as the old craft wear out or are wrecked new ones specially designed for the purpose are taking their places. The new barges are equipped with moderate sail power, so that if the tow is broken up each member can take care of itself even in considerable stress of weather. This development of the tow barge calls for a radical improvement in towing apparatus, for the strain is so tremendous that no ordinary hawser can endure it. Mighty windlasses are therefore provided capable of paying out and hauling in heavy steel-wire cable under almost any conditions of weather. The new system of towage was conceived in Boston, and has been carried to its present perfection mainly through the enterprise of the Boston Tow-Boat Company.

More picturesque and equally useful is the development of sea-going schooners as shown in the exhibition. Ten years ago three-masted schooners were rare enough to attract notice. Now they are seen in every port, and four-masted schooners are becoming familiar on all the great ocean routes. These fine vessels are strictly scientific in every item of construction, and their advantages over square-rigged ships of equal size is that they can be managed by a crew numbering nine men all told, namely, master, first and second officers, cook, engineer, and four seamen. The engineer is charged with the care of the donkey engine, where steam is kept up at all times, and which is expected to do heavy work, such as weighing anchor, hoisting the large sails, and handling freight. These vessels are largely engaged in the coal trade, and can carry from 1,800 to 3,000 tons. They require no ballast when empty, and constantly ride out the heaviest gales of the north Atlantic. They are destined to play an important part in American commerce. A five-masted schooner, the "Governor Ames," built at Bath, Me., has made several successful voyages, and it is believed by many ship-owners that she is but the pioneer of others of equal size. It is held that vessels of this class can be navigated at so small expense that they can compete successfully with steamers and square-rigged vessels in long voyages.

As an object lesson in the history of the American Merchant Service, the exhibition was highly suggestive and instructive. The general statement that the United States lost the maritime supremacy of the world, mainly through ignorant and hasty legislation, when it was almost within its grasp, is deplorably true; but it is not true that our country is an insignificant maritime power. While American ships have lost the foreign trade, the coastwise traffic has largely developed, because foreign vessels are not allowed to trade between United States ports. In total tonnage the United States are second only to Great Britain. It has been shown that the building of one steamship of 2,500 tons involves the labor of 600 men belonging to 30 different trades and representing the average payment of about \$500 a year to each man. Save the United States alone, all the maritime nations give liberal subsidies to steamers for the ocean mail service—France, \$4,500,000; Great Britain, \$3,750,000; even Hungary pays \$372,000. The United States paid \$326,735 in subsidies in 1888; but of this \$278,117.41 went to foreign ships, and to Americans less than \$50,000. It has been proposed to stimulate the revival of American shipping by the payment of 30 cents a ton for every 1,000 miles traversed between home and foreign ports. Among the interesting statistics presented at the Maritime Exhibition was the following estimate, based upon what is known as the Tonnage bill, showing that for less than \$5,000,000 American shipping could be placed in a position once more to compete with foreign lines. That the returns would aggregate many times the sum named seems obvious:

American tonnage registered (foreign sea-going):	
Steam	100,000 tons.
Sail	900,000 tons.
Total	1,000,000 tons.

Steam tonnage	100,000 tons.
Averaging a year about 100 miles each day	100,000,000 miles.
Which, for 300 days a year, would equal	3,000,000,000 miles.
Less the 1,000-mile provision, would receive pay for	3,000,000 miles.
At the rate of 30 cents a ton	\$900,000 00
Sail tonnage in foreign trade	900,000 tons.
Averaging about 50 miles a day	45,000,000 miles.
Which, for 300 days a year, would equal	13,500,000,000 miles.
Less the 1,000-mile rate provision, would require payment upon a mileage of	13,500,000 miles.
At 30 cents a mile, which would amount, per ton, to	\$4,050,000 00

RECAPITULATION.

Steam tonnage	\$900,000 00
Sail tonnage	4,050,000 00

Total premium to be paid..... \$4,950,000 00

There are indications in all directions that the lethargy that settled upon the sea-going industries just before and during the civil war is now passing away. Such exhibitions as that held in Boston will no doubt be repeated in other seaboard cities, and it is not beyond the range of possibility that men who remember the American Merchant Marine in the height of its prosperity in 1853 may see it equally prosperous and powerful before the close of the present century.

MARYLAND, a Middle State; one of the original thirteen; ratified the Constitution April 28, 1788; area, 12,210 square miles; population, according to the last decennial census (1880), 934,943; capital, Annapolis.

Government.—The following were the State officers during the year: Governor, Elihu E. Jackson, Democrat; Secretary of State, E. W. Le Compte; Treasurer, Stevenson Archer; Comptroller, L. Victor Baughman; Attorney-General, William P. Whyte; Secretary of State Board of Education, M. A. Newell; Tax Commissioner, Levin Woolford; Chief Justice of the Court of Appeals, Richard H. Alvey; Associate Justices, James M. Robinson, James McSherry, Levin T. H. Irving, William S. Bryan, Frederick Stone, Oliver Miller, and George Yellott succeeded by David Fowler. Judge Yellott retired on July 19, having reached the limit of age, and the Governor appointed in his place David Fowler, who afterward became his own successor by popular election.

Finances.—There was a balance of \$532,069.46 in the State treasury on Sept. 30, 1888; the receipts for the year ensuing amounted to \$2,067,343.71; the disbursements were \$2,108,686.16; and there remained on Sept. 30, 1889, a balance of \$490,727.01. The reduction in the treasury surplus during the year is explained by the fact that special appropriations of the Legislature of 1888 were larger by \$213,117.82 than the same appropriations in 1886, including \$50,000 for colored schools and large sums for harbor relief, militia, etc.

The receipts of school tax for the year were \$545,956.78, and the disbursements \$535,191.85.

The State debt amounted, at the end of the fiscal year 1889, to \$10,370,535.56, and the productive assets to \$6,031,255.04, leaving the amount of debt for which interest has to be provided by taxation, \$4,339,280.52. The sterling debt has been replaced to a large extent by the issue of bonds bearing 3 per cent. interest.

Under the act of 1888, chapter 154, the indebtedness of the Susquehanna and Tidewater Canal

companies to the State has been adjusted in the following manner: The sum of \$127,500 has been paid into the State treasury; the period for the payment of the debt due by the companies has been extended fifty years, and the rate of interest reduced to 2 per cent. per annum. The claims of the Maryland Coal Company, the Consolidation Coal Company, and other small claims have been satisfactorily adjusted.

For 1889 the total assessed value of property in the State, exclusive of the stock of corporations, was \$477,398,380 against \$490,016,183 for 1888, a decrease of \$12,617,803. Corporation stock and assets were assessed for 1889 at \$77,150,304.36, making the total assessed valuation for the year \$554,548,684.36. A State tax of 17½ cents on each \$100 was assessed for 1889, of which 10½ cents were for school purposes.

Education.—For the school year ending in 1888 the whole number of school children in the State was 209,123—white children 176,587, colored children 32,536. The average attendance of white pupils was 94,976, and of colored pupils 14,221. The total receipts from all resources—State, county, and city—for the year were \$1,719,695.14, nearly all of which was disbursed for school purposes.

During the school year ending in 1889, the amount of the expenditures for schools which was disbursed by the State, was \$398,949.90 for white schools and \$122,983.38 for colored schools. On the basis of the school population for 1888, this would give \$4.20 for each white child and \$8.65 for each colored child. The annual appropriation for State normal schools is \$10,500 for the school for white pupils, and \$2,000 for the school for colored pupils. The State Agricultural College is reported to be in a moribund condition. During the past two years it has received an annual appropriation of \$6,000 from the State, but in the past school year it enrolled only 35 students.

Charities.—The State Hospital for the Insane is crowded, and new buildings must soon be erected or the pay patients discharged.

Under the act of 1888 appropriating \$10,000 for a site for an asylum for feeble-minded children, the board of visitors purchased a farm in Baltimore County containing 186 acres, with a commodious dwelling and other buildings. The asylum was opened in January, 1889. At the close of the year the number of inmates was twenty, being all that can be taken with the present limited room. The annual appropriation for the institution is \$5,000.

Penitentiary.—The number of prisoners in the State Penitentiary at the close of the year was 705. The institution was formerly not only self-sustaining but paid a revenue to the State from 1873 to 1887, both inclusive, and would have so continued, but that in 1887 and 1888 the shoemaking and iron-casting contracts were withdrawn, thereby throwing a very large number of the prisoners out of work. During the past two years the directors have been compelled to draw \$12,000 from the State treasury for the maintenance of the prison, and there remains a small deficiency of \$719.59.

Floods.—The flooded Potomac, owing to the heavy rainfall of the latter part of May and early June, caused much devastation to property and

some loss to life in the State. The overflow occasioned much inconvenience at the National Capitol, but the effects were not serious, in spite of the fact that the whole of South Washington, except at the highest points, were submerged from six to eight feet deep for about twenty-four hours. On the upper Potomac the results were far more grave. About fifty lives were lost, several hundred families were left homeless, and more than \$2,000,000 worth of property destroyed in Maryland. There was not a mountain stream or rivulet in the western part of the State which was not transformed into a freshet. Scores of villages, some of them containing important manufactories, were inundated, and thousands of acres of farm lands were laid waste. The loss by ruined bridges, washouts, and land slides of the Western Division of the Baltimore and Ohio road reached more than half a million dollars. The Chesapeake and Ohio Canal, which runs from Williamsport, Md., to Georgetown, D. C., and cost many million dollars, at the outset was utterly ruined. The Western Maryland Railroad and its connecting lines, the Baltimore and Harrisburg and the Cumberland Valley roads were extensively damaged by washouts and destruction of bridges over a length of about sixty miles. Hundreds of square miles in the vicinity of Hagerstown and Shippenburg and in the Cumberland valley were submerged and many thousands of cattle drowned. The overflow of the Monocacy and its branches at the mountain town of Frederick was the cause of wide-spread havoc in the city and the surrounding farming region. The water rose thirty feet above its level at the railroad bridge, and most of the city was submerged. The loss in Frederick County was about \$300,000. At Williamsport the railroads were entirely washed away, and the new iron bridge over the Potomac totally destroyed. Along the whole course of the Patapsco in Howard County great ruin was effected in the destruction of mills and private property. The losses in Carroll County amounted to about \$300,000. Port Deposit, at the mouth of the Susquehanna, was entirely laid under water. People were obliged to flee from their homes in great haste. Hundreds of thousands of logs were swept down from the broken timber booms. The fine fruit region of eastern and southern Maryland was badly devastated and many thousands of dollars' worth of crops destroyed. On the Shenandoah and Potomac near Harper's Ferry hundreds of houses were swept away by the wrath of the waters, which came roaring down through the narrow gorges forty feet in height. The historic building known as John Brown's Fort was carried off. Along the South Mountains in Washington and Allegheny counties the havoc was great and the loss of life considerable, and \$100,000 worth of property was swept away at Point of Rocks. All the bridges of Frederick County, many of which were historic in connection with the late war, were destroyed, and Little Georgetown on the upper Potomac was wiped out of existence. The damage done on the Chesapeake was striking in its aspect. A spectator standing at Havre de Grace and looking southward could see the broad waters of the bay literally covered with every kind of *débris*—logs, trees,

miscellaneous drift, and the wrecks of houses. Many steamers were injured by these floating masses. It is estimated that 70,000,000 feet of lumber were hurled past Havre de Grace in twenty-four hours.

The Chesapeake and Ohio Canal.—The disastrous freshets on the Potomac and its tributaries in May and June completely wrecked this canal. It was so filled up and otherwise damaged as to require large expenditures and months of labor to render it navigable. For many years the canal company has been in financial difficulties, but the State owned a controlling interest in its stock, and the counties through which it ran were strongly interested in its welfare. In 1878 extensive repairs became necessary, and the Legislature permitted the company to issue mortgage repair bonds to the amount of \$500,000. But the earnings of the canal were not sufficient to meet the interest charge on these bonds, and at the time of the disaster five successive payments had been defaulted, amounting to \$75,000. By the provisions of the mortgage, a majority of the mortgagees might foreclose and sell the property after default in the payment of three successive interest coupons. Moreover, a majority of the bonds were held by the Baltimore and Ohio Railroad Company, which was interested in securing control of the property and thereby destroying its competition in freight traffic. Under such circumstances, the Canal Company found itself without business, revenue, or credit. No help could be expected from the State, because by the Constitution she was prohibited from making any advances in aid of works of public improvement. This was the condition of affairs when the Democratic State convention met on Sept. 26, and thus outlined a policy in its platform:

To avoid this unfortunate result [foreclosure], attended as it will most probably be by the permanent abandonment of the canal as a water-way, the Board of Public Works are earnestly urged to co-operate with private interests in any reasonable proposition to repair and restore it. If necessary, they should not hesitate to appoint as president and directors, upon the recommendation of these private interests, any competent and responsible men who will give a satisfactory guarantee of their willingness and ability to raise the money necessary to put and keep the canal in complete repair for transportation, and even to lease it for a long term of years to any responsible parties who will undertake, with satisfactory stipulations, such a desirable and important work. There should be no hesitation on the part of the Board of Public Works in doing everything in their power to prevent the total destruction of this water-way; and any business proposition reasonably guaranteed, looking to the restoration of the canal and its rescue from sale under foreclosure proceedings, should be accepted in the confident expectation that so far as legislation may be necessary to give permanent effect to such arrangement, it will be promptly passed by the coming Legislature. If, however, the large private interests to whom its preservation is so vitally important should be unable, before the meeting of the approaching Legislature, to raise the funds required to repair it and put it in good navigable condition, all that can then be done will be to provide in some way, by the law, for the rescue as far as possible of the interests of the State from the total sacrifice which will be sure to result from a forced sale under foreclosure proceedings at the instance of holders of the repair bonds of 1878.

The year ended without bringing financial relief to the company from any source, and early in January, 1890, foreclosure proceedings were begun by the railroad company.

The Hog-Island Dispute.—Difficulties arose with the State of Virginia in the latter part of the year regarding jurisdiction over about 3,200 acres of oyster ground near Hog Island, in the lower Potomac. The cause of the trouble was an act of the Virginia Legislature in 1888, authorizing the leasing of these grounds, under which a lease had been made to one Lewis, who asserted under it the exclusive right to take oysters within that area. The boundary between the two States had been fixed by arbitrators in 1877, and their decision, which gave the entire river to low-water mark on the south side to Maryland, was ratified by the Legislatures of both States. A claim was subsequently made by Virginia that the line should be measured from headland to headland along the Virginia shore, while Maryland maintained that the exact low-water mark should be strictly followed. The grounds in question, being between two headlands, were probably under the jurisdiction of Virginia if her claim regarding the boundary was correct. The only question to be determined was whether the flats leased to Lewis were in fact on the Maryland or Virginia side of the line. By agreement of the respective governors this point was referred in October to the National Coast Survey for determination, and its decision was made in favor of Maryland. Gov. Jackson thereupon issued a proclamation late in November declaring the flats open to dredgers from both Maryland and Virginia. Virginians were included in the proclamation in accordance with a compact between the two States, whereby an equal right of fishing in Maryland's portion of the Potomac was to be enjoyed by the citizens of either State. The immediate result of the Governor's course was to provoke hostilities on the disputed grounds, inasmuch as Gov. Lee felt bound to administer the law of his own State until it should be repealed, and to protect Mr. Lewis under it. On Nov. 27 the Maryland schooner "Lawson," acting under Gov. Jackson's proclamation, anchored on the Hog-Island grounds, but it was at once attacked by the Virginia police-boat "Augusta," under orders from Gov. Lee, and run down and sunk. Soon afterward Gov. Lee and Gov. Jackson reached an understanding by which the proclamation was temporarily withdrawn, pending the action of the Virginia Legislature on the question. In December a bill repealing the obnoxious act of 1888, and withdrawing the exclusive claim of Virginia, was passed, and received the approval of the Governor.

The Oyster Industry.—For several years the State has maintained armed steamers to protect the oyster-beds from dredgers who have not complied with the law regarding registration and license. During the season of 1888-'89 violations of the law by illegal dredgers were frequent, and a determined resistance to the State fishery force was made by them. On Dec. 10, 1888, a sharp contest occurred in Chester river between the State steamer "McLane" and a fleet of dredgers, in which two schooners were run down and sunk by the steamer and the

others were captured, while several men on both sides were wounded. The owners of the sunken vessels applied to the State courts for compensation, but were refused. On Jan. 2 of this year a similar fight took place between the State steamer "Helen Baughman" and the schooner "Robert McAllister." The latter was captured, and condemned and sold by the State authorities. As a result of these proceedings the State force was able to secure obedience to the law without finding serious opposition. Dredging was first authorized by the Legislature of 1865, at which time the license fee was fixed at \$5 a ton. It has since been reduced, until it is now insufficient to pay for the support of a proper police force. The receipts to the credit of the oyster fund during the fiscal year 1889 were \$61,562.08; the expenditures, \$63,306.09.

Fish Commission.—There were hatched at the stations on the Eastern Shore during the past year 34,000,000 shad, the largest number in any one year since the establishment of the commission, and 6,000,000 herring. These, and also carp in large numbers, have been distributed through the State.

Tobacco Inspection.—The Governor says in his latest message: "The receipts from the State tobacco warehouses have been steadily decreasing, until now they have become a regular annual charge to the State, costing about \$10,000 more than receipts within the past two years. It is estimated that the stock on hand at the close of 1889 will be about 10,000 hogsheads, and that the receipts of the new crop will not exceed 15,000 hogsheads; therefore the income from the warehouses for the coming year must be smaller than for many years past." He recommends a reduction in the number of warehouses.

The Colored Race.—A State convention of colored men, to promote "the educational, industrial, and political interests of the race," met at Baltimore on Feb. 26. It was largely attended, and adopted a long address to the people. It calls the attention of the Legislature to inequalities and invidious discriminations in the present State laws as manifestly unjust to the colored people and in violation of the common law and the fourteenth amendment. It is asked that the word "white" be stricken from the public-school laws, and that one or more schools in each locality be maintained for at least ten months in the year free to all youth between six and twenty years of age; that the school fund be apportioned according to the respective white and colored populations; that the law prohibiting the intermarriage of the races be abolished, because it is based on the theory that the negro is inferior to the white race; that colored students of both sexes be admitted to the State Normal School, to the Manual Training School, and to the Agricultural College.

Political.—On Aug. 1 the Prohibition party of the State met in convention at Glyndon Camp, and nominated D. E. Stone for Comptroller. A platform was adopted. The Democratic State Convention was held at Baltimore on Sept. 26, and nominated Comptroller L. V. Baughman for re-election. The platform makes the following explicit declarations upon State questions:

Bearing in mind that in the thirteen years that have elapsed since the last general assessment of property

in this State many and great changes in value have taken place, and that much of the property of individuals and corporations, which ought to contribute its fair proportion to the proper administration of the government of the State, and of the several counties and the city of Baltimore, now wholly—or in large part—escapes assessment and taxation, they declare for a new assessment, in order that the burdens of taxation may be equally distributed.

In dealing with the important question of taxation for State and local purposes, they declare that power should be conferred, by appropriate legislation, upon the city of Baltimore and other municipalities to raise revenue for local purposes by licenses, to carry on such branches of business or trade, or to conduct such occupations as are now required to be licensed for purposes of State revenue, but shall in no way deprive the State treasury of the revenue derived from licenses as are now or may hereafter be provided by the Legislature of this State.

By a judicious adjustment of licenses to sell liquor, with the superadded restrictive features which experience elsewhere has proved to be salutary and effectual, such legislation should be made to subserve the double purpose of reducing the rate of taxation on property, to the great relief of the people, and at the same time of largely removing from our midst the degrading and destructive vice of intemperance.

Recalling with just pride the reforms in the laws relating to the registration of voters and to the elective franchise which Democratic Legislatures have enacted, the faith of the party is now distinctly pledged to a further and more careful review of this fundamental and most vital subject, so that at the coming session of the General Assembly, following the good example set by many of our sister States, stringent provisions may be adopted for the purpose of preserving more thoroughly the purity of the ballot-box by preventing bribery, fraudulent colonization of voters, repeating, and all other offenses against the elective franchise; and also, that such amendments of our existing registration law may be made as will materially reduce the cost, while not impairing the efficiency of its execution. In this connection they favor the passage of a thorough primary election law, so drawn as to secure absolute fairness at all primary elections, and containing adequate and effectual provisions against violence, fraud, and all corrupt practices by which the will of the majority may be falsified, thwarted, or ignored.

They declare their sincere and determined purpose to recognize and enforce all the civil and political rights of the colored people of this State, but while thus earnestly resolved to see to it that in their persons and property they shall be fully and thoroughly protected, and that the present liberal provisions for the education of their children shall be maintained, they insist that the schools for the white and colored children shall be kept separate and distinct.

The declaration regarding the Chesapeake and Ohio Canal is quoted above.

On Oct. 3 the Republicans met in State convention at Westminster, and nominated George L. Wellington for Comptroller. The following is a part of the platform adopted:

While we acknowledge gladly that the great bulk of our Democratic fellow-citizens desire, as we do, just registration laws and fair elections, we deny that their party leaders share this desire, or purpose voluntarily to relinquish the unworthy practices to which they have so often owed their retention of power, and in proof of this denial we point to their refusal to permit the admirable bill prepared by Mr. James Alfred Pearce, of Kent County, to become a law at the last session of the General Assembly, and by their creditable attempt (happily frustrated by public opinion) to substitute for it a statute which, under the pretense of reform, would have perpetuated and aggravated the worst evils of the previously existing

system. And we promise to make every effort to obtain from the next General Assembly the enactment of Mr. Pearce's law, with the addition of such features of the so-called Australian ballot system as may be found suited to our institutions and adapted to protect the purity of the elective franchise.

We recognize with pleasure the progress made by the colored race under the enjoyment of civil and political liberty, and we favor guaranteeing, by appropriate legislation, if necessary, the employment of colored teachers in all colored schools, when by so doing equal advantages in the way of education can be afforded, and we advocate a more ample provision for the education of the colored race; and we denounce the practice of the Democratic party in its systematic and persistent attempts to deprive the colored citizens of the right of franchise; its effort by groundless arrests and other modes of intimidation to deter them from the exercise of their rights as a violation of the spirit of the Constitution and an indication of a settled purpose to rob them of the most cherished privilege of freemen, and we reassert it as the determination of the Republican party to maintain these rights in the fullest extent, and to give this class of our citizens the amplest protection of the laws.

We recognize intemperance as the fruitful source of pauperism and crime, of political corruption and social degradation, and we pledge ourselves to the adoption of those measures which have been found by the experience of other communities most efficient in eradicating the evils and in restricting and regulating the traffic in intoxicating liquors, and compelling it to bear its full share of the pecuniary burdens which it imposes upon the community; but such legislation must in no wise abridge the privilege already granted, or which may be granted in the future, to counties or smaller communities throughout the State to prohibit by popular vote such traffic within their limits.

At the election in November Baughman received 103,900 votes, Wellington 96,527, and Stone 3,741. Members of the Legislature for 1890 were chosen at the same time as follows: Senate, Democrats 18, Republicans 8; House, Democrats 60, Republicans 31. The Baltimore city election at the same time resulted in the choice of Robert C. Davidson, Democrat, for mayor, over Alexander Shaw, Republican, the vote being 41,063 for Davidson, and 38,062 for Shaw. There was a small Prohibition vote.

MASSACHUSETTS, a New England State, one of the original thirteen; ratified the Constitution, Feb. 6, 1788; area, 8,315 square miles; population, according to the last decennial census (1880), 1,783,085; capital, Boston.

Government.—The following were the State officers during the year: Governor, Oliver Ames, Republican; Lieutenant-Governor, John Q. A. Brackett; Secretary of State, Henry B. Peirce; Treasurer, George A. Marden; Auditor, Charles R. Ladd; Attorney-General, Andrew J. Waterman; Railroad Commissioners, George G. Crocker, Edward W. Kinsley, and Everett A. Stevens; Insurance Commissioner, George S. Merrill; Chief Justice of the Supreme Court, Marcus Morton; Associate Justices, Walbridge A. Field, Charles Devens, William Allen, Charles Allen, Oliver W. Holmes, Jr., and Marcus P. Knowlton.

Finances.—The total cash balance in the State treasury was \$4,319,611.53 on Jan. 1, 1889, and \$3,989,306.80 on Jan. 1, 1890. These figures include both the revenue account and all funds and deposits in the treasury. The receipts and payments on account of revenue alone for the year are shown in the following statement: Cash in the treasury, Jan. 1, 1889, \$1,818,036.65;

cash received during the year, \$16,317,917.59; total, \$18,135,954.24; payments during the year, \$16,548,115.80; cash in the treasury, Jan. 1, 1890, \$1,587,838.44. The several funds and trust deposits show the following aggregates: Cash on hand, Jan. 1, 1889, \$2,501,574.88; cash receipts during the year, \$14,522,234.48; total, \$17,023,809.36; payments on these accounts, \$14,622,341; cash on hand, Jan. 1, 1890, \$2,401,468.36. The actual State expenses in 1889 were \$5,484,894.08, an increase of \$454,560.57 over 1888.

The State debt on Jan. 1, 1889, aggregated \$28,851,619.65, and on Jan. 1, 1890, \$28,251,287.85, a decrease for the year of \$600,331.80. Payments were made by which bonds to the value of \$3,460,331.80 were retired, and new bonds were issued amounting to \$2,860,000.

Valuations and Assessments.—The total assessed valuation of property in the State for 1889 was \$2,072,170,863; personal estate assessed, \$542,670,951; real estate assessed, \$1,529,499,912. Included in the assessment were 4,494,207 acres of land, 340,457 dwellings, 172,741 horses, 48,619 sheep, 256,191 neat cattle, and 340,457 swine. Personal estate in Suffolk County was valued at \$204,395,129, and real estate at \$618,585,535. The total State tax assessed for 1889 was \$2,000,000.

Legislative Session.—The Legislature assembled on Jan. 2, and was prorogued on June 7, having been in session 157 days. United States Senator George F. Hoar was re-elected, receiving 32 votes in the Senate and 171 in the House. The Democratic nominee, Patrick A. Collins, received 6 votes in the Senate and 56 in the House. The proposed Constitutional amendment, to prohibit the sale of intoxicating liquors, which was adopted by the Legislature of 1888 was again adopted this year, and provision was made for its submission to the people on April 22. For the purpose of bringing out a full vote, that day was declared to be a legal holiday. Three other amendments to the State Constitution were proposed and adopted by the Legislature this year for the first time. The first amends the provision regarding soldiers and sailors, so that they shall not be disqualified from voting "on account of having received aid from any city or town, or because of non-payment of a poll-tax." The second provides that "no person otherwise qualified to vote in elections for governor, lieutenant-governor, senators, and representatives, shall, by reason of a change of residence within the Commonwealth, be disqualified from voting for said officers in the city or town from which he has removed his residence until the expiration of six calendar months from the time of such removal." The third provides that "the General Court may enact laws excluding from suffrage, for a term not exceeding ten years, all persons convicted of crimes against the elective franchise, and infamous crimes."

In order to carry out the proposed extension of the State-house, a construction commission was created and a construction loan not exceeding \$2,500,000, to be obtained by the issue of 3-per-cent. bonds, was authorized.

A metropolitan sewerage commission was created, and the treasurer was authorized to issue and sell bonds to an amount not over \$5,000,000, to raise funds for its work.

A State hospital for dipsomaniacs and inebriates was established, and \$150,000 appropriated for land and buildings to accommodate 250 patients.

Permission was granted the town of Pittsfield to become incorporated as a city.

Other acts of the session were as follow :

Authorizing the city of Boston to incur an indebtedness of \$1,000,000 beyond its legal limit of indebtedness, for the purpose of completing its public-library building.

For the further protection and preservation of lobster.

Authorizing women that have been appointed special commissioners to administer oaths, take depositions, take acknowledgments of deeds and other instruments, and issue summons for witnesses.

Providing for the appointment of three commissioners of public institutions by the mayor of the city of Boston, who shall supersede the board of directors of public institutions.

Annexing a portion of the towns of Randolph and Holbrook to the town of Avon.

Annexing a part of the town of Stoneham to the town of Wakefield.

Prohibiting docking of the tails of horses.

Providing for the granting of aid by towns or cities to indigent soldiers or sailors not otherwise aided by the State or nation.

Providing the penalty of imprisonment, from two to five years, for abandoning an infant under two years of age.

Authorizing the city of Boston to borrow not over \$500,000, in excess of its legal limit of indebtedness, for the purpose of extending its sewerage system.

Prohibiting incorporated safe-deposit, loan, or trust companies from investing in Western mortgages.

Prohibiting the sale of intoxicating liquor on Labor Day.

Placing under civil-service rules the appointment of engineers, janitors, and all persons having charge of steam boilers and furnaces in school buildings in the city of Boston.

Permitting accident-insurance companies to insure the liability of employers for injuries received by their employes.

Authorizing towns to employ counsel at hearings before committees of the Legislature.

Authorizing cities and towns to prohibit the taking of eels and shell-fish.

Amending in certain minor particulars the Australian-ballot act of 1888.

Providing that boarding-houses for infants under five years of age shall be licensed by the city or town authorities.

Requiring the Governor to appoint a commissioner of foreign mortgage corporations, with power to supervise and regulate the business of such corporations in the State.

Making the excessive use of opium or other drugs a ground of divorce.

Prohibiting the transaction of the business of savings banks or co-operative banks except by incorporated companies.

Authorizing the Boston and Albany Railroad Company to increase its capital stock by \$10,000,000.

Prohibiting the sale of liquors on election days by holders of fourth and fifth class licenses, except wholesale druggists.

Providing for the appointment of a State military and naval historian.

Education.—The following public-school statistics cover the school year 1888-'89 : Number of children of school age, 367,785 ; number of all ages in the schools during the year, 363,166 ; average attendance, 270,851 ; teachers employed—men, 901 ; women, 9,222 ; average monthly wages of male teachers, \$108.88 ; female teach-

ers, \$45.93 ; number of public schools, 7,023 ; average length of school year in months, 8.55. During the year 236 high schools were maintained, employing 756 teachers, with 24,136 pupils in attendance—an increase of 6 schools and 1,354 pupils. The number of towns not having high schools was 134 ; but, while they constitute one third of the whole number, they contain less than one tenth of the population of the State. Fifty-one cities and towns have maintained evening schools to the number of 240, an increase of 26 schools over last year. The whole number of pupils in these schools was 23,632, of whom the greater proportion, 17,208, were males. This is a decrease of 4,093 pupils. The number of teachers, 876, and of pupils in average attendance, 12,598, is also less than last year. The whole amount of money raised by taxation for the support of public schools, including only wages of teachers, fuel, and care of fires and school-rooms, was \$5,366,605.29, an increase of \$252,202.88 for the year. The amount expended for new school-houses was \$614,508.54. There were expended during the year for the schools, exclusive of the sum for repairing and erecting school-houses, \$6,203,390.55, or \$16.87 for each child of school age. The total expenditures, including repairs and new school-houses, aggregated \$7,510,718.85, or \$20.42 for each child of school age.

The number of private schools is reported to be 396, an increase of 48 for the year. The number of pupils in attendance was 37,620, an increase of about 7,000. This large increase was caused in part by the withdrawal of Catholic children from the public schools and the placing of them in parochial schools, as a result of the public-school controversy of last year.

The attendance at the six State normal schools for the year was as follows : At Bridgewater, 260 ; at Framingham, 187 ; at Salem, 292 ; at Westfield, 168 ; at Worcester, 245 ; at the Normal Art School, 200 ; total, 1,352. Of the 8,753 teachers in the public schools, 3,373 have obtained a normal-school training. The State has appropriated money for new school buildings at Framingham, Bridgewater, and Westfield, and these are in process of construction.

Charities.—The following is a summarized statement of the condition of the various State charitable institutions :

Danvers Lunatic Hospital : Patients, Oct. 1, 1888, 715 ; admitted during the year, 351 ; discharged, 307 ; remaining, Sept. 30, 1889, 759 ; expenditures for the year, \$137,638.05. Westborough Insane Hospital : Patients, Oct. 1, 1888, 406 ; admitted during the year, 400 ; discharged, 303 ; remaining, Sept. 30, 1889, 503 ; expenditures for the year, \$89,900.79. Northampton Lunatic Hospital : Patients, Oct. 1, 1888, 481 ; admitted during the year, 155 ; discharged, 190 ; remaining, Sept. 3, 1889, 446 ; expenditures for the year, \$94,470.09. Taunton Lunatic Hospital : Patients, Oct. 1, 1888, 624 ; admitted during the year, 204 ; discharged, 211 ; remaining, Sept. 30, 1889, 617 ; expenditures for the year, \$112,916.36. Worcester Lunatic Hospital : Patients, Oct. 1, 1888, 771 ; admitted during the year, 391 ; discharged, 353 ; remaining, Sept. 30, 1889, 809 ; expenditures for the year, \$144,765.73. Worcester Insane Asylum : Patients, Oct. 1, 1888, 395 ; admitted during the year, 36 ; discharged, 48 ; remaining, Sept. 30, 1889, 383 ; expenditures for the year, \$65,033.46. State Almshouse, insane department : Patients, Oct. 1, 1888, 331 ; admitted during the year, 64 ; discharged, 31 ; remaining, Sept. 30, 1889, 364 ; total

number in almshouse in other departments, Oct. 1, 1888, 865; admitted during the year, 2,538; discharged, 2,562; remaining, Sept. 30, 1889, 841; expenditures for supplies, \$96,634.46. School for the Feeble-minded: Pupils, Oct. 1, 1888, 194; admitted during the year, 28; discharged, 20; remaining, Sept. 30, 1889, 202; expenditures during the year, \$35,795.41. State Farm, asylum ward: Patients, Oct. 1, 1888, 141; remaining, Sept. 30, 1889, 147. Of the lunatics supported at these institutions on Sept. 30 of this year, numbering 4,028, only 1,153 were at the expense of the State, the remainder being supported by cities and towns, or by private individuals. The total number of insane persons in public and private institutions and in town almshouses was 5,552 on Sept. 30.

At the Perkins Institution for the Blind there were 226 blind pupils on Sept. 30, of whom over one half were wards of the State. The following deaf-mutes were supported by the State during the year: At the American Asylum, Hartford, Conn., 63; at the Clarke Institution, Northampton, 79; at the Horace Mann School, 73—all at a cost of \$26,337.28.

For the year ending March 31, 1889, the number of persons wholly supported by towns and cities as paupers was 12,981, and the number partially supported, 48,123. The net cost of such support to the towns and cities was \$1,838,359, and the total \$2,009,092.

Prisons and Reformatories.—The number of prisoners at the State Prison on Dec. 1 was 581; at the Massachusetts Reformatory, 642; and at the Reformatory Prison for Women, 221; total, 1,444. In the two former institutions, under the law of 1887, the prisoners have worked on the public-account system. The result of their labor for the year was as follows: Expenses of the business, \$194,483.32; receipts therefrom, \$218,880.12; excess of receipts, \$24,396.80. There were also 159 prisoners employed at the State Farm at Bridgewater on Oct. 1. The State Reform School at Westborough contained 184 boys on the same date, an increase of 42 for the year, and at the Industrial School for Girls at Lancaster there were 87 girls, an increase of 24. The number of prisoners in county houses of correction on Dec. 1 was 2,403. Except in two counties, provision is made for the employment of prisoners at these institutions.

Savings Banks.—The Savings Bank Commissioners report under their supervision 177 savings banks and institutions for savings, with assets of \$350,072,392.12; 93 co-operative banks, with assets of \$7,106,751.77; 13 trust companies, with assets of \$67,603,464.02; 2 mortgage loan companies, with assets of \$1,834,737.64; 2 collateral companies, with assets of \$375,378.59; 2 savings banks in the hands of receivers, with assets of \$563,579.67; total, 289 institutions, with assets of \$427,556,303.81, an increase of 28 institutions in number and of \$25,864,881.76 in assets over last year. The average deposit per capita of population by the census of 1885 is \$171.38.

Manufactures.—According to the report of the State Bureau of Statistics, based upon returns from 1,140 establishments, the value of stock used therein in 1887 was \$160,649,676, and in 1888 \$165,459,026; the value of the total product for 1887 was \$309,352,514, and for 1888 \$320,520,609; the capital invested for 1887 was \$268,902,538, and for 1888 \$269,574,938. In 1887 the average number employed in all the establishments represented was 172,208, and the average number employed in the same establishments in 1888 was 172,796. The average yearly

earnings in the specified industries were \$394.79 in 1887, and \$402.45 in 1888.

Prohibition Amendment.—The Republicans this year so far acceded to the demands of the Prohibitionists as to permit the question of constitutional prohibition to be submitted to the people at a special election. The submission act having been approved by the Governor on March 21, a full month was given for the canvass before the April election. Meetings were held by the Prohibitionists throughout the State, speakers were brought from other States, and the question was thoroughly discussed. The press of Boston was almost entirely either opposed to the amendment or silent on the question, and this was in a less degree the position of local papers throughout the State. Although the friends of the amendment expected defeat, they were surprised at the large majority against them. The negative vote cast was 131,062 and the affirmative vote 85,242, a majority of 45,820 against the amendment.

Local Option.—Under the local-option law elections are held each year in every town and city—in the towns at the February or March meetings, and in the cities at the December elections. The following table summarizes the vote on the license question by counties for 1889, the licenses granted, and the receipts therefrom:

COUNTIES.	Yes.	No.	Licenses granted.	Received for licenses.
Barnstable	252	1,096	6	\$305
Berkshire	4,752	8,850	107	56,394
Bristol	7,647	9,429	253	152,454
Dukes	8	818	3	3
Essex	15,542	15,596	422	195,293
Franklin	1,702	2,084	36	11,916
Hampden	7,688	5,571	174	114,271
Hampshire	2,080	2,924	56	22,520
Middlesex	17,957	25,629	366	182,335
Nantucket	212	141	6	1,350
Norfolk	3,811	7,078	36	2,181
Plymouth	3,832	5,735	34	13,212
Suffolk	29,170	19,358	1,456	958,902
Worcester	14,291	15,711	305	161,684
Total	108,894	114,550	3,260	\$1,812,810

Of 326 towns, 276 voted against license and 50 in its favor; of 25 cities, 12 voted against license and 13 in its favor.

Since 1884 the number of druggists' licenses has increased from 482 to 983 in 1889, which tends to show that, as restrictions upon saloons have increased, the drug stores have taken a part of their business.

The Ballot-Reform Law.—The act of 1888 establishing the Australian or secret system of voting was tested for the first time at the November election this year. For several weeks prior to the election friends of the law were active in circulating information by pamphlets or otherwise regarding its provisions, and at the polling places on election day full instructions could be obtained by every voter. In order to meet the need of an increased number of polling places, the city of Boston provided at small expense portable frame houses, of about 25 by 50 feet, where the city did not have public buildings that might be used as voting places. In this way, although the original outlay was about \$80,000 for the houses and their furnishings as

polling offices, the saving in rent decreased this by nearly 30 per cent. The result of the election proved the practicability of the law. Very few voters were unable to understand the method of marking the ballots, and the mistakes made by them were not greater than were expected at the first trial of the system. Some of the voters placed a cross opposite only the name of the candidate for Governor, thinking that they voted thereby for the whole ticket of which he was the head; others voted only for the first two or three State officers; others for the State and not the local candidates. The total vote for Governor was therefore considerably larger than that for the remainder of the ticket, the vote for Lieutenant-Governor was next smaller, and so on through the ticket. The exact figures were as follow: Total vote, Governor, 263,111; Lieutenant-Governor, 257,607; Secretary of State, 251,922; Treasurer, 250,592; Auditor, 249,461; Attorney-General, 249,324. In very few cases were unmarked ballots cast or was the intention of the voter so doubtfully shown that his vote could not be counted. The cost to the State for printing ballots required by the law was \$14,627.48.

Political.—The Prohibitionists of the State met in convention at Worcester on Sept. 4 and nominated the following ticket: For Governor, John Blackmer; for Lieutenant-Governor, Benjamin F. Sturtevant; for Secretary of State, George D. Crittenden; for Auditor, William H. Gleason; for Treasurer, Frederick L. Wing; for Attorney-General, Allen Coffin. The resolutions include the following:

That while we sustain local option in town, county, and State, we also recognize its entire inadequacy to contend with a traffic aggressively organized throughout the nation.

That the recent failure in so many States to accept Constitutional prohibition is a sufficient proof of the unwillingness of both of the two great political parties to commit themselves in any way to the policy of prohibition, and makes more apparent than ever the absolute necessity of united political action on the part of all who are opposed to the traffic in intoxicating drinks.

The Republican State convention was held at Boston on Sept. 25. A vigorous preliminary canvass for the gubernatorial nomination was made by the friends of Lieut.-Gov. Brackett and Hon. William W. Crapo, which was virtually decided in favor of the former by the action of the Republican caucuses of Boston. The vote in convention was 743 for Brackett, 674 for Crapo, and 11 scattering. For Lieutenant-Governor, William H. Hallé was nominated by acclamation after two ballots had been taken. Secretary of State Peirce, Treasurer Marden, Auditor Ladd, and Attorney-General Waterman were renominated. The platform included the following:

In State affairs the question deservedly most interesting to the people of this Commonwealth is that of temperance. The recent action of the people upon the proposed prohibitory amendment to the Constitution, which was submitted to them as promised by the Republican party, remits the question of suppressing the sale of intoxicating liquors to the Legislature, which is fresh from the people and familiar with their will. But we declare our unqualified hostility to the corrupting moral and political tyranny of the liquor saloon. We insist that every law against it shall be maintained and enforced; that no backward step shall be taken; and that further legislation shall be

had whenever and wherever it can secure further suppression of this terrible evil.

The Democrats met in State convention at Worcester on Oct. 2, and nominated the following ticket by acclamation: For Governor, William E. Russell; for Lieutenant-Governor, John W. Corcoran; for Secretary of the Commonwealth, William N. Osgood; for Treasurer and Receiver-General, Edwin B. Munn; for Auditor, William D. T. Trefry; for Attorney-General, Elisha B. Maynard. The platform included the following:

We reiterate our former demands for the removal of the poll-tax qualification for voting, as an un-Democratic and un-Republican restriction upon manhood suffrage.

We favor a strict regard for the principles of local self-government, and we denounce the growing tendency of the Republican party to favor the administration from the State-house of matters pertaining to local government, for the sake of securing a temporary partisan advantage, or for the purpose of controlling the political action of the liquor traffic, while posing before the people as its opponent.

We regard the metropolitan police commission for the city of Boston, supported by taxation levied upon a community to which it is in no way answerable, and armed with arbitrary secret and practically irresponsible power over important matters of purely local concern, as an improper and dangerous tribunal, entirely opposed to the spirit of our political institutions, and we therefore demand its abolition.

We believe that the present policy of this State in making the sale of liquor a matter of local option, to be decided by the vote of the people of each city and town, works satisfactorily and should be maintained.

During the canvass, both of the gubernatorial candidates spoke in the larger towns and cities. The Republican ticket was elected, but the plurality for Brackett was reduced to 6,775, while the Republican plurality for Lieutenant-Governor was 20,791; for Secretary of State, 25,476; for Treasurer, 24,256; for Auditor, 28,392; for Attorney-General, 22,173. Brackett received 127,357 votes for Governor, Russell 120,582, and Blackmer 15,108. The Legislature for 1890, chosen at the same time, will contain 29 Republicans and 11 Democrats in the Senate; 160 Republicans and 80 Democrats in the House.

Boston.—At the municipal election on Dec. 10, Mayor Thomas N. Hart, Republican, was re-elected, receiving 31,115 votes to 25,996 for Owen A. Galvin, Democrat. The Republican plurality was three times as great as in 1888. The Republicans, also, obtained a victory in the election of 7 out of 12 aldermen and 48 out of 73 councilmen. The license vote was: Yes, 26,936; no, 18,763.

MERCANTILE AGENCIES. In its infancy, the business of gathering information concerning the standing or credit of commercial houses was conducted by gentlemen who, in seeking to supply what they conceived to be a much needed demand for such facts, found their views and those of the merchants as to the necessity for such work often greatly at variance. Almost innumerable obstacles met these agents at every step. Merchants who had been taught by experience to rely upon information gathered from their associates in business or through correspondence with their customers, and who, in brief, had diligently pursued the methods which had been generally so successfully employed by

their predecessors, rejected the offers of these agents and their representatives, or declined to heed the suggestion that their services might be found valuable. The task of procuring satisfactory statements was difficult, and the inquiries made to this end were almost invariably considered as intrusive. The information obtained was not always reliable, and where errors were committed their publication was often made the basis for libel suits. When the fact is considered that fifty years ago the centers of trade were confined to four cities—Boston, New York, Philadelphia, and Baltimore—it will be seen that the field was not large, and it is not surprising that merchants felt confident of their ability to manage their affairs without the aid of agencies for the dissemination of information; and as the patronage of these agents was small facilities for perfecting their business could not be extended as rapidly as was desirable. But gradually merchants became convinced that it was wise to foster an enterprise which the expansion of trade, the growth of the country, and changed methods of business would ere long become a necessity, and one by one the obstacles were overcome. The first to enter the field as a collector of information for the mercantile public was Mr. Lewis Tappan, who started an agency about the year 1840 in this city. He had a ripe experience as a merchant, his acquaintance was extensive, and he started with a determination to succeed. Gradually the business grew, the patronage increased, mainly because of the care taken to procure reliable information, and merchants soon came to consider the agency as a means of extending their business and meeting competition. Soon after Mr. Lewis Tappan was succeeded by his brother Arthur, who had been a prominent silk merchant, and through his efforts the business largely increased, so that in 1845 or 1846 Mr. Benjamin Douglas was taken into the concern and the firm name was Tappan & Douglas until 1852 or 1853. Then Mr. Douglas succeeded to the business, associating with him Messrs. Robert G. Dun and Charles Barlow, under the name of B. Douglas & Co. This house continued until 1860, when the firm of Dun, Barlow & Co. was formed. This was dissolved in 1880 by the death of Mr. Barlow, and R. G. Dun & Co. succeeded.

In 1845 Woodward & Dusenbury started an office in Nassau Street near Cedar and sought to compete with Mr. Tappan. They were moderately successful, and in 1852 were joined by Mr. John McKillop, who had been in the employ of Tappan & Douglas, and the firm was then made John McKillop & Co. They afterward removed to offices in the "Times" building, and Mr. McKillop associated with him Mr. John Tappan, of Boston, under the firm name of Tappan, McKillop & Co. Mr. Tappan retired about 1870, and then the firm became McKillop, Sprague & Co., which went into liquidation about the year 1878. Bradstreet's originated in 1848, the founder being Mr. J. M. Bradstreet, who previously had been a dry-goods merchant in Cincinnati. Subsequently the firm became J. M. Bradstreet and Son, and in 1878 a stock company was formed under the style of The Bradstreet Company.

From these small beginnings the business of the mercantile agent has grown to vast propor-

tions with branches in every principal city in the United States and Canada, and in Berlin, Paris, London, Glasgow, and Manchester. The information collected through the machinery of these offices is regarded as almost invariably reliable, and very rarely are complaints made of errors of a serious character. The services of the agency are in almost hourly requisition at the principal business centers, and the reports have become indispensable to the management of all branches of trade. The statistics of failures, liabilities, etc., are published at frequent intervals, and the annual compilations and comparisons are invaluable for marking the fluctuations in business enterprises at different periods and in various sections of the country.

As an illustration of the present condition of the mercantile agencies, it may be stated that the new names inserted in the "Reference Book" of R. G. Dun & Co., which is the oldest agency in the country, for the six months ending July 30, 1889, were 123,850; the number of names obliterated was 101,992; the number of changes made in ratings and styles of firms was 141,389. This makes the total number of corrections in the six months 367,231, an average of 2,441 for each business day. The total number of names in the "Reference Book" July 30, 1889, was 1,150,937. The total number of names reported on the mercantile agency records is largely in excess of this, only those engaged in strictly mercantile business being included in the printed list.

The following, from the records of R. G. Dun & Co., shows the number of failures and the amount of liabilities resulting therefrom, in the United States, from 1857 to 1876 inclusive:

YEAR.	Failures.	Liabilities.	YEAR.	Failures.	Liabilities.
1857 ..	4,932	\$291,750,000	1867 ..	2,780	\$96,666,000
1858 ..	4,225	95,749,000	1868 ..	2,608	63,694,000
1859 ..	3,913	64,394,000	1869 ..	2,799	75,054,054
1860 ..	3,676	79,807,000	1870 ..	3,456	88,242,000
1861 ..	6,993	207,210,000	1871 ..	2,915	85,252,000
1862 ..	1,652	23,049,000	1872 ..	4,069	121,056,000
1863 ..	495	7,899,900	1873 ..	5,183	228,499,900
1864 ..	520	8,579,000	1874 ..	5,380	155,239,000
1865 ..	580	17,625,000	1875 ..	7,740	201,000,000
1866 ..	1,505	53,783,000	1876 ..	9,092	191,117,000

The following shows the number of firms in business, the number of failures, and the amount of liabilities resulting therefrom, in the United States, from 1877 to 1889, inclusive (see also the article FAILURES IN BUSINESS, in the "Annual Cyclopædia" for 1883):

YEAR.	In business.	Failures.	Liabilities.
1877	652,006	8,872	\$190,669,936
1878	674,741	10,478	234,383,182
1879	702,157	6,658	98,149,053
1880	746,323	4,735	65,752,000
1881	781,689	5,582	81,155,932
1882	822,256	6,738	101,547,564
1883	863,998	9,184	172,874,172
1884	904,759	10,968	226,343,427
1885	910,990	10,637	124,220,321
1886	969,841	9,834	114,644,119
1887	994,281	9,634	167,560,944
1888	1,046,662	10,679	128,829,973
1889	1,051,140	10,882	148,784,337

METALLURGY. Iron and Steel.—An interesting paper on "The Recalescence of Iron" was read at the last meeting of the British Association by Prof. W. S. Bartlett, who said that when iron is heated white hot and then allowed

to cool in the air the temperature falls irregularly till the glow nearly disappears. At that point the metal suddenly glows again to bright-red heat and then continues to cool to the temperature of the air. A wire while heating at the same critical point ceases to become hotter—in fact a slight chill takes place, after which the march of temperature is resumed. In 1869 Mr. Gore discovered that a cooling iron wire was momentarily elongated at this critical temperature. The reversed action of contracting on heating was found by the author in 1873; also that it is at this temperature that iron by the action of heat loses its magnetic properties. Further a curious sound occurred at the same point indicating some alteration of structure. Here also took place the change in the thermo-electric properties of iron discovered by Prof. Tait; and other modifications in the physical and chemical qualities of iron and steel have been observed at this temperature.

Mr. Ferd. Gautier assigns an important influence to silicon in some of the processes of converting iron and steel. In the Bessemer conversion it performs a double part. Oxide of iron is formed in the beginning of the blast, and were there not something present to prevent, it would act upon the carbon with a dangerous disengagement of gas. Silicon reduces the oxide without disengaging gas and retards the combustion of the carbon. It, furthermore, itself burning, develops great heat, and remaining in the converter as silica raises the temperature of the bath and augments the fluidity so that the reaction of the oxide of iron on the carbon goes on gradually and without disturbance, and the formation of bubbles is prevented. Another salutary quality of silicon lies in its property of facilitating the conversion of white casting into gray. These two substances differ in that in white casting the carbon is all combined, while in gray a part of it exists free as graphite. The content of graphite is increased or diminished by adding or taking away silicon; and this affords a convenient means of fixing the quality of the product at a desired standard. The presence of these two substances together in steel tends to diminish its malleability, by the rule that with a content of carbon less than two thousandths steel can, without inconvenience, contain as much as five thousandths of silicon; but steel containing four or five thousandths of carbon will hardly bear an equal proportion of silicon. Silicon, indeed, seems destined to play an important part in iron making.

The same subject was discussed by Mr. R. A. Hadfield, of Sheffield, at the Paris meeting of the Iron and Steel Institute. Silicon, the author said, has been blamed rather hastily. Alloys of carbon, silicon, and iron are, to be sure, unreliable as regards ductility, but it is now proved that silicon alloyed with iron, provided carbon is nearly or entirely absent, gives good tests as to toughness and malleability. The cause of brittleness, therefore, is not in the silicon only, but in the combination of silicon with carbon and iron. It has been pointed out, also, that "silica is often mistaken for silicon; who knows how far it is responsible for this metalloid's bad name?" Silicon may perhaps enter into different combinations in steel, some of which pro-

mote and some impair ductility and malleability. Apparently silicon, up to $1\frac{1}{2}$ or $1\frac{3}{4}$ per cent., added to iron, does not impair ductility; but after this further increase of strength is obtained only with a serious loss of ductility. Silicon clearly can not take the place of carbon; the latter has always the advantage of being more easily applied, and of producing a material more suited to the various requirements of users of steel.

W. J. Keep, H. S. Fleming, and Edward Orton, Jr., while they accept generally Prof. Turner's results as to the influence of silicon in steel, find that it is not sufficient to secure an exact 2 per cent. of silicon in order to obtain maximum strength. Each of the irons used has its peculiar tendencies, which will exert their influence in the most unexpected ways. The range of strength in the 2-per-cent. silicon irons is very wide, and is due to the peculiar state of the carbon in them when they come from the furnace. There is no typical composition for cast iron made by mixture; the chemical composition of all the two-per-cent irons is essentially the same, and yet the tests show great diversities among them physically.

The report of the British Association's committee for 1889 on the influence of silicon upon the properties of steel finds that the addition of silicon to iron up to $1\frac{1}{2}$ or $1\frac{3}{4}$ per cent., while it increases the limit of elasticity and raises the tensile strength, does not impair ductility.

Concerning the influence of copper on the tensile strength of steel, E. J. Ball and A. Wigham find that within certain limits copper does not seem prejudicially to affect its mechanical properties. Mr. Bauerman has expressed the opinion that it is not the copper, but the sulphur which generally comes with the copper, that is injurious to iron.

At the conclusion of his lecture before the British Association "On the Hardening and Tempering of Steel," Prof. W. C. Roberts-Austen dwelt upon two sets of considerations as being of special importance—those which belong to the relations of carbon and iron, and those which contemplate molecular change in the iron itself. The first of these, he said, has been deliberately subordinated to the second. While much that is said in support of the theory that carbonized iron is an alloy, the author believes that the possibility of molecular change in the iron itself, which results in its passage into a distinctive form of iron, is at present the more important subject for consideration, both in relation to iron and to the wider question of allotropy in metals generally. Many facts in spectroscopic work make it probable that the molecular structure of a metal like iron is gradually simplified as higher temperatures are reached; or that allotropic modifications take place. This question demands continued and rigorous investigation.

In a paper on "The Corrosion and Fouling of Steel and Iron Ships," Prof. V. B. Lewes remarks that corrosion generally precedes fouling on exposed metal surfaces, and that in all processes of rusting carbonic acid and water play an important part. The iron uniting with the carbonic acid and oxygen of the water forms a ferrous carbonate, while the hydrogen is set free; the ferrous carbonate then takes up the

oxygen dissolved in the water, or present in the atmosphere, as the case may be, and is decomposed into ferrous oxide (or rust) and carbonic acid. The last being liberated in contact with the moist surface of the iron, carries on the process of "rusting." Some chemists ascribe rusting in sea water to a more complex action, in which the salt present first forms oxychloride of iron. The author does not accept this view. The saline constituents of the water are, however, acknowledged to play an important part by contributing to galvanic action between the iron in the plates and any foreign metal or impurities that may be present. The corrosion of the plates in the interior of a vessel is of equal interest, and is a greater source of danger because it is often hidden. The protection of the outsides of the bottoms of ships has been attempted by metallic and by non-metallic coatings. So far all attempts at metallic coatings have proved failures, and the liability to galvanic action will probably prevent their ever being successful. Of non-metallic coatings there are about thirty in the market. They may be classified, roughly, as oil paints, pitches and waxes, varnishes, and coatings of cement. The preferable ones are the pitches and waxes and varnishes containing substances to give them body. Of the anti-fouling preparations that have been tried, a composition which exfoliates rapidly and contains poisons known to act on germ life is the best for vessels at rest, while a slowly exfoliating composition with a small percentage of poison is all that is required for a vessel that is to be continually running. Brackish water seems to exert a special action in keeping the bottom of a vessel clean, it being disagreeable to both fresh-water and salt-water organisms.

A peculiar characteristic of the Bessemer or Robert steel is said to be the difference in hardness between it and open-hearth steel. Robert steel of 0.15 carbon is as hard as 0.25 carbon open-hearth steel. This is a more decided difference than has been found to exist between open-hearth and Bessemer steel.

Glycerin has been found to possess many advantages for use in tempering steel and cast iron. Its specific gravity may be varied as seems best by adding water; the quantity used should be from one to six times greater than the weight of the piece to be plunged into it; and its temperature should be varied—from 15° to 200° C.—according to the hardness of the metal.

For preserving iron from rust, Mr. John Heald, of Crockett, Cal., coats the surfaces with finely ground lead mixed with spirits of turpentine. Common paint mixed with oil is too thick to close all the imperfections of the surface, or run beneath the scale when it exists. The composition recommended penetrates the most minute pores.

Aluminum.—While aluminum alloys are abundantly produced in the United States by the Cowles process, the metal itself is prepared on a large scale at the Aluminum Company's works, Birmingham, England, by a process in essential respects the same as that described by Saint-Clair Deville. The works comprise a plant of twenty furnaces for the manufacture of metallic sodium by the Castner process, with a total capacity of about 1,500 pounds a day; a set

of twelve regenerative heating furnaces, containing sixty retorts for the manufacture of the double chloride of aluminum and sodium, and turning out about 5,000 pounds every twenty-four hours; a Weldon chlorine plant; and furnaces for reducing the aluminum from the double chloride by means of the sodium. The total capacity of the works is about 500 pounds of aluminum daily. The chemical process here employed is one of the most complicated known in metallurgy. The Cowles process is, on the other hand extremely simple, and consists mainly in the reduction of the oxide of the metal in the presence of carbon of a very high temperature. Several improvements are mentioned by Mr. H. Pemberton, Jr., as having been made in this process. By tapping the furnace and allowing the molten metal to flow directly into the ladle or into slabs, instead of letting it cool in the furnace and then putting it cold into crucibles to be melted, the capacity of the plant has been practically doubled. By using bauxite, as well as corundum, for a raw material, an abundant supply of alumina is insured. Besides the works at Lockport, N. Y., which employ two dynamos of 217 electric horse-power each, a machine of 402 electric horse-power, in Milton, England, is running regularly day and night. Being a metal of handsome appearance, not readily tarnishing, and very light, with about the strength of brass, aluminum is the best for use for purposes for which such a combination of qualities is desired. It can not be used for cooking utensils, because it dissolves easily in organic acids in the presence of chlorides. It has been used to advantage in aluminum leaf, fine wire lace, certain surgical instruments, suture wire, dental plates, etc. It has not been found satisfactory in jewelry because its color becomes "dead" in time, and it becomes brittle. Aluminum iron is valuable in the production of "mitis" castings, in which, by the addition of 10 to 15 per cent of its weight of aluminum, the "melting point of iron is reduced by nearly 500° Fahr. Aluminum brass has been selected by the United States Government as the best material for the propeller blades of the war vessels now in course of construction.

The aluminum process of M. Héroult differs from the Cowles process in that in it the chemical energy of the current is brought to bear in the electrolysis of the substance which has been liquefied by its heat—in other words, while the Cowles process is thermic, that of M. Héroult is thermo-electric. In the apparatus which the Metallurgic Society has erected at the Falls of the Rhine, Neuhausen, for the operation of this process, the crucible consists of a block of charcoal inclosed in a metallic cell, which is connected with the negative poles of the dynamic machines, while the positive poles terminate in a group of carbon plates. Electric communication is established through the medium of a mixture of coal tar and molasses, which becomes carbonized under the heat that is developed as soon as the current is set on. Copper filings having been placed in the bottom of the crucible the carbon plates are let down. A bath of liquid copper is formed by the melting of the filings, and the argillaceous earth to be reduced—a pure alumina—is introduced, while the bundle of carbon plates

is slightly lifted up. The reduction goes on continuously, and is interrupted only occasionally, during the few moments that are required to change the electrodes. The daily production by this process is 3,000 kilogrammes of 10-per-cent. aluminum bronze, which corresponds with 300 kilogrammes of aluminum.

The Maussier aluminum process comprises three distinct periods and kinds of operations—desilification, reduction, and liquation. The desilification is effected by means of fluorine or fluoride of calcium at a high temperature in the presence of carbon. Lime, or carbonate of potassium or of sodium may be added to facilitate the decomposition of the silicate. The reduction or expulsion of the oxygen is obtained by means of iron and manganese raised to incandescence in the presence of carbon. The liquation, for separating the iron and the manganese, is effected by dropping the molten mass into carbon ingot molds. The aluminum thus obtained is said to be nearly pure.

Copper and Tin.—The proprietor of the Anaconda Copper Mine, Montana, is preparing to refine his own product electrolytically. The two important advantages are claimed for the electrolytic process that it makes it possible to extract cheaply any silver which may be in the raw material, and that it gives an excellent quality of copper. The silver ores at Butte City being refractory, it pays to smelt them together with copper ores low in silver, whereby a rich product is obtained.

The manufacture of tin plate at the works of Hennebont, France, includes five operations—the manufacture of the pig and scrap iron into ingots, the manufacture of the ingots into bars and sheets, the preparation of the sheets for the tinning process, the manufacture of the tin plates, and the decoration and stamping. The first process is performed in the Siemens-Martin furnace. The ingots are then rolled into sheets, which are folded into bundles of eight sheets of the desired dimensions. These plates are annealed and brightened by passing under cylinders of polished steel. The preparation for the tinning process consists chiefly of dipping in sulphuric, hydrochloric, or nitric acid. The bath for tinning is composed of equal parts of block tin and alluvial tin, with the addition of a little copper. After dipping, the plates are passed through a bath of boiling grease, and then through one of melted tin containing a little chloride of zinc. On coming out of this bath they are brushed and subjected to a second plating, similar to the first.

It was shown by M. Leon Vignon, in 1888, that crystallized tin is capable of high oxidation, and when heated in contact with the air presents the curious property of combining with oxygen without melting, while it burns like tinder. Further experiments with this partially oxidized tin have disclosed several facts explaining these phenomena, and supplying the elements of the theory on which depend the common industrial operations of tinning and soldering. In general, it may be concluded that tin is capable of considerable oxidation in a dry or moist atmosphere—a conclusion which agrees with the comparative data already obtained on the heats of formation of the metallic oxides.

Zinc.—Some remarkably perfect crystals of metallic zinc, obtained in preparing that substance for the determination of its atomic weight, are described by George H. Williams and William M. Burton. Three different types of crystals were formed—spheroidal polyhedral aggregates, barrel-shaped crystals, and tabular hexagonal plates. The polyhedral aggregates appear at the first glance like brilliant but very complicated crystals, bounded by a multitude of planes, a careful examination of which shows that they are without symmetry of arrangement. The bases of the barrel-shaped crystals, which do not exceed two millimetres in diameter, are sharply defined and hexagonal, but their sides are finely striated. The tabular hexagonal crystals were the only ones that furnished crystallographic data. They were produced only when the distillation of the zinc proceeded slowly and at a moderate temperature. They are composed of piles of sharp hexagonal plates whose boundaries are parallel but not coincident, rapid alteration in the size of which may produce very irregularly shaped crystals. There is, however, an average decrease in the size of the plates as the pile grows upward, producing a gradation of the tabular into the barrel-shaped crystals. The fact that the angles of the hexagonal plates do not lie in the same line, although their sides are parallel, often produces a rough edge between the adjoining pyramidal faces. The observations tend to confirm the conclusions of Rose, that zinc is rhombohedral in crystallization, and isomorphous with arsenic, antimony, bismuth, and tellurium.

A small piece of native metallic zinc is said to have been found at the State Mining Bureau at San Francisco, in a specimen of sulphide from Shasta County, Cal. This is the first piece of the kind known to have been secured in the United States. Late works on metallurgy speak of specimens in the mines of Victoria, Australia, as being the only native metallic zinc yet found.

Manganese.—The properties of manganese appear to differ according to the method used in the reduction of the metal. When obtained from the oxide by heating with carbon, most authorities agree that the metal oxidizes so readily in the air or under water that special means have to be used to preserve it. Manganese prepared in 1869 by Brunner's process of reducing the chloride mixed with fluor-spar by means of sodium, was found to have as little tendency to oxidation as iron. This process has been repeated by Charles Bullock, who finds that manganese thus obtained is very brittle, with a steel white fracture so hard that a file will hardly touch it, while the edges of the fractures scratch and almost cut glass. The metal retains the brightness of a fractured surface after prolonged exposure to the air, and appears not more disposed to oxidation than iron. It is passive to magnetic attraction. Metal obtained without the use of fluor-spar was less brittle, and had a different fracture. When fluor-spar is used, the metal shows a trace of calcium.

In the method of Dr. Glatzel, of Breslau, for preparing manganese, the dehydrated chloride is mixed with twice its weight of well-dried potassium chloride, and fused at the lowest possible temperature, which must not be sufficient to volatilize either of the chlorides. Magnesium—about

one sixth the weight of the manganese chloride employed—is introduced in small portions at a time. The mass is heated strongly, and then allowed to cool. On breaking the crucible, all the potassium chloride and the excess of manganese chloride and a regulus of metallic manganese will be left, fused into a solid block. The metal thus obtained has a bright metallic luster, and is exceedingly hard.

Rich manganese ores occur in the Gosalpur district of the Central Provinces, India. The Gosalpur deposit consists of pyrolusite, an ore of high quality occurring irregularly through the laterite. Mr F R. Mallett, in 1883, discovered a strong bed of hematite on the north-northwest front of the hills, which, besides being manganiferous, contains a variable subordinate proportion of a manganese ore known as psilomelane.

Manganese is mined in Chili at several points in the provinces of Coquimbo and Atacama. The mines at Mansee were discovered about ten years ago and were worked satisfactorily by an English company for several years, when the returns began to fall off. The mines of the Corral Quemado, in Coquimbo, are connected with the railway by a good carriage road. At other places the difficulties of carriage interfere with profitable working. The rich mines of Picanitas, in Atacama, have only recently been worked, and the first cargo of ore from them was shipped in February, 1887.

Silver and Gold.—Silver has been found by Mr. Carey Lea capable of existing in allotropic forms that possess qualities differing greatly from those of normal silver. Three such forms, or rather modifications of one form, are described that differ from one another in many respects, but are all more nearly related to each other than any one of them to normal silver. One of them is soluble in water, passing readily to an insoluble form; and the last may, by the simple presence of a neutral substance exercising no chemical action upon it, recover its solubility. Another form resembles gold in color and luster. Whether metallic silver shall be reduced from its compounds in its normal or in an allotropic form depends upon the reducing agent applied to it, so that it can not be said with any certainty whether it exists in its compounds in its ordinary normal or an allotropic form. The allotropic forms are distinguished from normal silver in color, properties, and chemical reactions. They not improbably represent, the author suggests, a more active condition of the element, of which common or normal silver may be a polymerized form. Something analogous has been observed with lead and copper. The allotropic forms are classified by the author as, (a) soluble, deep red in solution, matte lilac, blue, or green while moist, brilliant bluish-green metallic when dry; (b) insoluble, derived from a, dark reddish brown while moist, when dry somewhat resembling a; (c) gold silver, dark bronze while wet, when dry exactly resembling gold in burnished lumps. Of this form there is a variety which is copper colored, insoluble in water, and appears to have no soluble form. The properties possessed by all the varieties in common and distinguishing them from normal silver include that of drying with their particles in optical contact, and so forming

a continuous film; the development of beautiful colorations under the halogen reactions; conversion by the stronger acids into normal gray silver without the separation of gas; and easy reducibility to an impalpable powder. The extraordinary sensitiveness which allotropic silver shows to external influences contrasts strongly with the inertness of normal metallic silver. When this fact is placed alongside of the sensitiveness of many silver compounds to light, heat, and mechanical force we are led to ask, says the author, whether silver may not exist in this form in these very sensitive compounds.

P. L. Bartlett concludes from ten years' experience, working both the wet and dry processes, that to effect the separation of gold and silver in zinciferous ores, separation of the zinc must be effected before the sulphur is wholly removed from the ore in the dry way, and that so far, no wet process has yet been discovered which is practical in the large way, and is cheap enough to be of utility. He finds the most practicable process for removing zinc from its ores to be by sublimation. In his own system the aim has been to accomplish three things—the treatment of the ore in the raw state by the use of cheap fuel, separation of the zinc and lead without loss of the silver and the gold, and the utilization of lead and zinc fume. The zinc having been removed from the ore, the treatment of the residue offers no trouble; moreover, when the zinc, lead, and most of the sulphur are removed, the ore has lost nearly one half its weight, consequently the silver and gold are raised in proportion. In the process the crushed raw ore is mixed with about 75 per cent. of some cheap fuel in a fine state of division. The zinc and lead are easily sublimed and pass off in a fume of sulphites and sulphides, while the non-volatile metals, with some sulphur, melt down and form a slag or scoria, which is easily treated by the usual blast furnace process. For ores containing much silica and gangue, the process is modified, and is made substantially “a mild type of Bessemerizing.” The author further describes a process for refining the lead and zinc fumes. A pigment mixture is produced, containing about two thirds oxide of zinc and one third sulphate and oxide of lead, and weighing nearly as much as straight white lead, which constitutes a very fine white paint of great coloring power. It is believed to form the best substitute for white lead yet discovered.

The ordinary machines for reducing gold ores to a suitable condition for extracting the metal from them are said not to yield more than from 65 to 70 per cent. of the gold contained in the ore, and still less if the ore is refractory. A system invented by Mr. Rowland Jordan, of London, is said to give much better results. It comprises two machines, the reducer and the amalgamator, the former of which delivers the finely crushed ore directly to the latter. In the amalgamator the gold-bearing sand is distributed so evenly over a large area of mercurialized surfaces, compactly arranged within a small space, that the possibility is precluded of any of the particles escaping without having undergone frictional contact with one or other of them. The machine is said to have proved itself capable of extracting from 15 per cent. more gold than any other machine of equal or even greater cost.

The extraction of gold by the *tierra seca*, or dry process, which is necessary in some arid regions, is greatly facilitated by a machine which has been invented by Mr. William H. Card, an American. The main principles underlying the system are the action of a current of air and gravitation. The crushed ore is fed through a hopper on to a series of sieves, where it is agitated, and a blast of air is driven or sucked up through the bottoms of the sieves and through the ore. The lighter parts of the pulverized matrix rise and are carried forward to the outside of the machine, while the gold and other metals descend to the bottom of the sieve.

A plant capable of treating 120 tons of ore daily, by the Russell process, has been put in operation at the Massac Mill, in Utah. Of the eight precipitating tanks, two are used in the separation of lead, two for the bulk of the gold and silver, and two for saving silver from the wash water. The first part of the treatment is nearly similar to that in amalgamation. When cooled, the wasted ore is washed for the removal of soluble salts; silver salt in the water is precipitated by sodium sulphate, and gold and silver compounds are dissolved by the "stock" solution of sodium hyposulphite, followed by the "extra" solution (containing also copper sulphate). Lead is precipitated from the extraction liquors by sodium carbonate, and the gold, silver, and copper are thrown down by sodium sulphide.

The Mount Morgan gold mine, in central Queensland, is a hill rising about 500 feet above the sea level, not outwardly distinguishable from the hills around it. The preponderating stone, a kind of black ironstone, although there is nothing in its appearance suggesting gold, yields five or six ounces of that metal to the ton. Some of the stone is reddish, and looks as if it might contain copper, while occasional banks of yellowish sand yield eleven ounces of gold to the ton. The ore was formerly treated by the ordinary battery and quicksilver amalgamation process, but the gold is so finely distributed through the stone that most of it was lost, and the tailings are now treated with satisfactory results by a chlorination process. The ore is crushed to a fine sand, then roasted, and when cool placed in the chlorination barrels and subjected to the action of chlorine gas. The dissolved gold flows out in a fluid, the color of sherry, into vats, whence it is placed in charcoal filters, where the metal adheres to the charcoal beds. The ash, after roasting, contains 75 per cent. of metallic gold.

Alloys.—The most important alloys of aluminum, according to Sir Henry Roscoe, are those made with copper. The alloy containing 10 per cent. of aluminum, the maximum amount which can be used satisfactorily, is known as aluminum bronze. Other bronzes containing smaller proportions of aluminum possess in various degrees the valuable properties of this one. According to the percentage of aluminum up to 10 per cent., the color ranges from red gold to pale yellow. The 10-per-cent. alloy takes a fine polish, and has the color of jewelers' gold. The 5-per-cent. alloy is not quite so hard, and is similar to pure gold in color. The alloys all possess a good color, polish well, keep their color far better than all other copper alloys, are extremely malleable and ductile, can be worked either hot or cold,

are easily engraved, are very elastic, the higher grades being more so than steel, are easily cast into complicated objects, do not lose in remelting, and are possessed of great strength. Even a more important use of aluminum is its employment in the iron industry, of which it promises, by virtue of certain effects which it produces when present even in most minute proportions, to become an important factor. Aluminum added to molten iron and steel lowers their melting points; consequently it increases the fluidity of the metal and causes it to run easily into molds and set there, without entrapping air and other gases, and without forming blow-holes and the like imperfections. Aluminum forms alloys with most other metals; but though each possesses peculiar properties that may be utilized in the future, they are at present but little used.

It is well known that certain mixtures of molten metals show a tendency on standing fused for some time to separate into two alloys of different densities. Such separations have been observed in mixtures of lead and zinc, bismuth and zinc, aluminum and zinc, and aluminum and bismuth. In each case two different alloys are formed, one consisting of the heavier metal with a little of the lighter one dissolved in it, and the other of the lighter metal containing a small quantity of the heavier one. It is remarked by C. R. A. Wright and C. Thompson that tin will alloy indefinitely in all proportions with any of the four metals, lead, bismuth, zinc, and aluminum. The mixtures exhibit no particular tendency to separate while resting in a fused condition, but in some cases separation takes place by the partial formation of a eutectic alloy during solidification. Various other metals, including cadmium, antimony, and silver, behave like tin in this respect. The authors selected the alloys of lead, tin, and zinc for their experiments. Among their conclusions, which are detailed at length in their paper, the more generally interesting ones appear to be that the greater the proportion of tin present, provided it does not exceed the limiting amount beyond which no separation takes place, the more zinc is contained in the heavier alloy, and the more lead in the lighter one; but the distribution of the tin throughout the mass is not uniform.

The latest results of experiments in the fabrication, properties, and use of the ferro-metallic alloys have been summarized by M. Ferdinand Gautier in a report made by him to the organization committee of the International Congress of Mines and Metallurgy which was held in connection with the French Exposition of 1889.

A distinction is made between *spiegel* and *ferro-manganese*, the former name being given to alloys of iron and manganese not having any other predominant substances present in which the manganese content does not exceed 20 per cent.; while ferro-manganese may contain from 20 to 80 per cent. and more of manganese. Alloys containing more than 25 per cent. of manganese cease to be attracted by the magnet. A ferro-manganese having more than 85 per cent. of manganese can hardly be got in the blast furnace. Ferro-manganese is silvery white, but when broken hot receives by superficial oxidation a brilliant iridescent coating. Its content of carbon will depend on the temperature at

which the furnace has been kept. It is brittle, in proportion to the percentage of manganese, and crystallizes readily. The forms of the crystals have been studied by M. Mallard, who finds that the normal prismatic form of spiegel is maintained till the proportion of manganese equals from 52 to 55 per cent., when the structure becomes bacillar and cylindrical, and the form passes to a rhombic prism.

Manganese exerts both a direct and indirect influence in ameliorating the quality of steel. It has no sensible effect in purifying the metal from phosphorus. Its slight action as to sulphur is not important. There prevails in all metal-working some affinity that we may call dominant, which varies with each metal, and around which the fundamental reactions are grouped. In iron, this affinity is for carbon, by the aid of which the reduced iron can be liquefied in the blast furnace and separated from its earthy gangue. But iron, by absorbing carbon, loses many of its most valuable properties, becomes sour, brittle, and unmalleable, and will not weld. When, highly carburized, it is converted into steel, it partly preserves the new properties which it had in a high degree as cast iron. In short, excepting the steels solely composed of iron and carbon, carbon must be characterized as an enemy in mild steels. It acts especially by influences, exaggerating by its presence the impurities included in common steels. Phosphorus, arsenic sulphur, and silicon, which existing in the same proportions in pure iron would have had no injurious effect, become dangerous in the presence of carbon, adding their own to its acidity. In permitting the production of low-carbon steels, manganese, although not having a purifying influence has an ameliorating one, by preventing the accentuation of the bad effect of impurities.

Iron and aluminum may probably be alloyed in all proportions, but the alloys called *ferro-aluminum* have only recently been made available for use. Employed in reducing the oxide of iron in steel, a metal without bubbles is produced. While manganese does no harm when it is present in excess, aluminum, when used in the production of blisterless steel, should not be introduced in greater quantity than necessary. Besides its expensiveness, aluminum has the inconvenient property of hardening steel. According to the experiments of Messrs. Keep, Mabery, and Vorce, in the United States, aluminum in white iron gives a more homogeneous structure. It has much the same action as silicon upon carbon. In tempering, it prevents the deposition of the hard coating on the outside of the metal, and causes a precipitation of graphite; aluminous castings also producing a deposit of graphite in contact with the molds, it is no longer necessary to give them a black coating; for no vitrefying action or bleaching of the metal is to be feared. Aluminous castings are soft and uniform to the working of the tool; they present increased resistance to flexion and to shock. The quantity of aluminum is usually too little to exercise a direct influence on the fluidity of the metal; but indirectly, through the slighter shrinkage and through the deposition of graphite, which permits the instant refilling of the molds, things go on as if the fluidity were augmented.

In the direct method of making, the ingots of aluminum are introduced into the liquid casting, when a rise of temperature takes place, with the elimination of graphite, which swims on the surface. The resulting alloy is hard, brittle, and—when it contains 10 per cent. of aluminum—easily pulverized. In the indirect method, soft steel is used, with aluminum enough to form a 10-per-cent. alloy; whereby the impurities present in cast iron are avoided. The fracture of the metal thus made is clean and homogeneous, showing great purity.

The alloy platinumoid, whose electrical and mechanical properties were first investigated by J. T. Bottomley, has assumed considerable importance in the construction of electrical instruments and resistance coils. It is a composition similar to German silver, in which tungsten is employed; is capable of being polished so as to resemble silver, though with a darker and more steel-like color, when it does not tarnish. It possesses a higher electrical resistance than any other known metal or alloy except platinum-silver alloy, and has been found by Sir William Thomson to have excellent elastic qualities.

Efforts to form alloys of iron and nickel have been successful only in late years. Difficulty was found in producing a malleable nickel, the earlier processes resulting in the production of a metal so contaminated with the oxide that that quality was destroyed. The alloy having 25 per cent. of nickel, produced in 1887 at Imphy, was of good color, not easily oxidizable, took a beautiful polish, and responded satisfactorily to the tests for malleability and ductility. It was also not magnetic. Its fracture is not grainy, but "nervous," like that of the soft steels. These qualities depend very much on the purity of the nickel, for the smallest quantity of foreign substance may cause considerable variations. Experiments made in 1888 with much lower proportions of nickel gave rise to other alloys promising to be of value. Concerning later experiments made in England, in alloys having different proportions of nickel, Mr. James Riley reported to the Steel Company of Scotland that the steel obtained was quiet, and did not rise in the molds, had a homogeneous appearance and a good flow, was very fluid, and solidified rapidly. When highly charged with nickel it had a tendency to accumulate on the side of the flow. The residues could be remelted without waste of the nickel contained in them—an important fact when old matter is to be used over to any considerable extent. No particular precautions are needed in rolling or hammering. The behavior of the steel in the fire is that which accords with the carbon content, except that for alloys containing more than 25 per cent. of nickel a less lively fire is needed, and a little more care should be observed in the drawing. It seems, although an exact determination was not made on this point, that nickel-iron, to work well when cold, should be poor in carbon; and that carbon has with nickel the same souring influence which it exercises when present with manganese, phosphorus, and silicon. While the presence of nickel does not modify the elongation of iron, it affects advantageously the limit of elasticity and the breaking load. The limit of elasticity is reduced two thirds by reheating. The tor-

sion is improved even by the presence of 1 per cent. of nickel. Nickel-iron containing 25 per cent. of nickel is 87 per cent. less liable to corrosion in moist air than ordinary soft steel. The resistance to corrosion diminishes as the proportion of nickel falls off, but is still better than that of steel. No difficulty occurs in working cold up to 5 per cent. nickel; but the alloys richer in nickel are less tractable. Alloys under 1 per cent. solder well; beyond that degree the operation becomes more delicate.

According to Mr. James Riley, nickel can be made to form an alloy with steel in quantities varying from a hardly appreciable amount up to as much as 50 per cent. The alloy does not require an excessively high temperature to melt it; special attention is not necessary to its production; and the resulting metal is definite in character and is easily worked under the hammer and in the rolls. A very remarkable increase in the tensile strength and elasticity of steel is produced by alloying it with nickel. While ordinary mild steel and nickel steel with low proportions of nickel appear to corrode in about the same proportion, the alloy containing 25 per cent. of nickel is non-corrosible.

Magnesium bronze was prepared by H. N. Warren by projecting a half-ounce of magnesium metal upon two ounces of melted copper and pouring over it melted borax to prevent oxidation. The resultant metallic button, when polished, presented the appearance of a highly zinciferous brass: proved brittle enough under the hammer to be readily pulverized; and in solubility, oxidizing properties, and fusing-point, resembled an ordinary brass. By analysis it contained 11 per cent. magnesium. A part of the alloy was remelted with the addition of various percentages of copper. The regulus became less brittle as the percentage of copper was increased, till an alloy containing 21 per cent. magnesium was obtained. This presented the appearance of a true bronze, and resembled the same in physical properties. Even a $1\frac{1}{2}$ per cent. of magnesium readily affected the copper by bleaching it, and hardening it to a considerable extent. The various alloys of copper and magnesium thus produced did not appear to excel, in general properties, the more common, and, at the same time, more readily formed alloys of copper.

A new bronze, called "reliance bronze," introduced by Messrs. Openshaw and Co., of London, has satisfactorily withstood the usual tests. Seven different alloys are made, each of which has its special characteristics, rendering it suitable for the various purposes to which bronze is applicable.

A new alloy, patented by Herr C. Bülles, of Aachen, is formed by adding to melted copper or tin 16 per cent. of arsenic inclosed in a copper shell, after which the mixture is granulated in water and used as a flux for metals. Bronze prepared in this manner is said to be more elastic, more durable, and more dense than phosphor-bronze.

The method of determining iron in ferro-alloys by decomposing with dilute hydrochloric or sulphuric acid and oxidizing with bichromate of potash becomes inaccurate when copper is present. In the method proposed by T. W. Hogg—of dis-

solving the alloy in dilute hydrochloric acid, adding potassic chlorate, and boiling—small quantities of organic matter or copper do not interfere with the results.

Processes.—In the electric welding process of Prof. Elihu Thompson, the joint to be welded is traversed by an alternating current of electricity strong enough to fuse the metals together. In the new process of Dr. Bernado, a continuous current from a charged accumulator is employed.

To eliminate the carbon from ferro-manganese Sergius Kern proposes the use of the decarbonizing process employed for the production of malleable castings from pig iron. The ferro-manganese, high in manganese, is cast from blast furnaces in thin flat pigs. These pigs are heated in cast-iron boxes filled with a mixture of three fourths of hematite powdered iron ore and one fourth of lime, also in the form of a powder.

A new process has been introduced by Mr. C. G. Mullins for the use of silica in place of silicon in the manufacture of iron. It needs no special plant or additional machinery, and is applicable to all processes for the production of cast iron, wrought iron, steel, and cast steel. It is claimed for it that it makes an acid slag and will remove the oxide of iron, lessen the amount of carbon, promote the formation of graphitic carbon, and antagonize the formation of combined carbon; will change the hard white irons, combined carbon irons, old burned-out irons, and inferior scrap into soft, tough, gray irons; will liberate the occluded gases, leave the molten metal quiet, render the product comparatively free from porosity; help the elimination of sulphur and phosphorus, diminish the tendency to shrinkage and cracking, leave the castings cleaner, diminish the quantity of ferro-manganese used in steel making; augment the electrical conductivity of steel wire, and increase the tensile and resilient strength of iron and steel.

In M. de Montzelas's process for producing magnesium by electrolysis, a bath is formed, consisting of a concentrated solution of magnesium chloride combined with an equally concentrated solution of chloride of some other metal, aluminum excepted. The preferred formula is chloride of zinc one part, and chloride of magnesium two parts. The best results are obtained by the method of galvanic deposition with a simple pile. The zinc deposits in slender filaments and arborescent forms, and the magnesium comes down in a state of crystalline grains. The zinc and magnesium are then collected, washed, and dried, and afterward melted in a crucible with a covering of common salt. The zinc volatilizes and leaves the magnesium pure.

The Redeman-Telford Steel Company, of Louisville, Ky., has been making experiments with a new process of welding, the later ones having been chiefly with laminated steel. Two or more sheets of steel treated by the process, with iron sheets sandwiched in between the steels, have been welded with one heat, very firmly. The Redeman-Telford steel, after treatment, is soft, and easily punched; but after tempering it is difficult to drill holes into it.

A patent has been taken out in the United States for a new process of manufacturing steel in which natural gas has an important part. On

coming in contact with the molten metal, the gas is dissociated. Part of the carbon goes into the bath to carbonize the iron, while another part, together with hydrogen, unites with the oxide left in the bath by the action of the air.

A method is described by Clemens Jones for the determination of silicon in pig iron by rapid evaporation. It is intended to be used in the "direct process" of making steel and frequently in making foundry iron, when it is necessary to determine silicon in the iron in a few minutes.

METEOROLOGY. Temperature.—In an article on decrease of temperature with increase of altitude, Prof. W. Ferrel reviews the cases of rapid decrease that would occur were the atmosphere without aqueous vapor and in a stable state; of the very low temperature that would exist a little above the earth if there were no atmosphere; of the low temperature of the upper atmosphere, owing to radiation into space, if the earth were surrounded by a clear atmosphere, not heated by the solar rays. The very rapid decrease of temperature with height is prevented by the ascending currents caused by unstable equilibrium, and by the heat of condensation given out after the vapor has ascended to the altitude when condensation begins. The average vertical gradient is less in the cloud region than in the lower strata of the atmosphere, and less in the lower strata in cloudy than in clear weather, as was shown by the results of Glaisher's balloon observations. The author also refers to the more frequent unstable state of the atmosphere in spring and early summer, owing to the lower strata at that season being warmed up faster than the upper strata. In the fall of the year the unstable state is not so readily produced, and more settled weather prevails.

In the report of his observations of temperature at the top of the Eiffel Tower, 1,150 feet above the sea, M. Alfred Angot compares the mean monthly maxima and minima from July to November inclusive with those recorded on the ground-level at Pare Saint-Maur, near Paris. According to the usual decrease of temperature with height, the tower observations should be about 2.9° Fahr. lower than those made at the ground station, but the difference is much greater in summer during the day and less during the night. In calm and clear nights, especially, the temperature has been nearly 11° Fahr. higher at the summit than at the base. At the time of a change of atmospheric conditions, the change is manifested some hours, or even days, earlier at the higher station than on the ground. In the observations of wind velocity, the order of changes at the top of the tower appeared to be inverse to that which rules below. At ground stations the velocity is weakest about sunrise, and reaches a maximum at midday. On the top of the tower, the minimum velocity was observed between nine and ten o'clock in the morning, and the maximum occurred about midnight.

Clouds.—The phenomena of fogs and clouds are attributed by Prof. Palagi to the presence of minute drops of water with diameters of from $\frac{1}{10}$ to $\frac{1}{20}$ mm. at a temperature below freezing. Recent observations made by the author on Mount Titano showed that when the temperature falls below freezing these globules are con-

verted into minute hexagonal needles and flakes of the same form. In their passage from the higher regions, through the lower and less cold strata, but still below freezing, these simple crystalline forms appear to be transformed into the stars and flakes of ordinary snow. But when the temperature rises above freezing, they are again changed to the minute liquid drops of clouds, fog, or rain.

According to Dr. William Marcet, the essential condition for the formation of fog is relatively warm water with a cooler atmosphere. If the air is damp, the condensation of vapor into fog is more rapid, and *vice versa*, the law applying to every source of vapor—sea, lake, river, or damp soil. Among the physical properties of fog is the power of checking loss of heat from the soil by radiation, whence autumn fogs exert a beneficial influence in producing a slow transition from autumn to winter.

The material for the investigation of the frequency of mist has been found by Dr. Kremser, of Berlin, to be very scanty. Even in the same city, discrepancies appear in the observations which are not all due to different local conditions. It is impossible to determine any secular changes on the basis of existing observations, although something may be learned about yearly variations. At most stations the maximum amount of mist occurs in the months of November and December, but the rule is varied from at the coast of the North Sea, on islands, and on mountains. As a rule, 70 per cent. of the year's mist falls in autumn and winter, 20 per cent. in spring, and 10 per cent. in summer. The number of days on which mist occurs is greatest at mountain stations. In winter mist is most frequent in the morning, diminishes considerably toward midday, and in the evening is at times as frequent as at midday, at times somewhat more frequent. In summer, mist is observed only in the morning.

Storms.—The two prevailing theories of storm generation—that of an ascensional central current, and that of the increase of energy through the liberation of heat—are reviewed in the "American Meteorological Journal," by Prof. H. A. Hazen, who concludes that both are unsubstantial and will not bear scrutiny; that there can be no release of latent heat by precipitation and subsequent increase of energy through the partial vacuum induced; that the processes of storm formation are almost wholly independent of temperature distribution in a vertical direction; that there is no marked vertical ascending air column in a storm center, and if there were one it would rapidly bring the whole process to an end; and that the winds which blow about a storm center are radial, or nearly so, at the outside, but gradually become more and more tangential, and at the center are exactly so. Hence there is no need of a vertical ascending current; and if there be such a current it can only be at the center of the disturbance or of the curves of the isobars.

The attempts that have been made in Europe to secure storm warnings through the Atlantic cables have not been successful, for the lack of knowledge of the conditions existing over the ocean. Many storms pass wide of the British Isles, and others originate in mid-ocean or die out

there. The investigations of M. Teisserenc de Bort of the mean positions of high and low pressures in the northern hemisphere for the winters since 1838 indicate correspondences between those great centers of atmospheric action and different types of weather. It also appears that during each season the centers are limited in number, and that each of them when displaced still lies within a definite area. During the winter season, the maxima may be arranged as follows: 1. The maximum of Asia, which generally includes two parts in Siberia or Russia; 2. The maximum of Madeira, which also is sometimes split up into two parts, one over the ocean and the other over Switzerland and Central Europe, or joining with a part of the high pressures of Asia; 3. The Bermuda maximum, which is often found over the east of the United States, or even in the neighborhood of Nova Scotia; 4. The continental maximum of America, which usually lies over the mountainous parts; and 5. The polar maximum, which appears over Greenland, Iceland, or Norway. The minima are, 1. The low pressure situated over the north of the Atlantic, which may be called the Iceland minimum; 2. An American minimum, generally found over the Great Lakes; and 3. A minimum of the Arctic Ocean, centering generally over Nova Zembla. The maxima and minima may combine, but there are hardly any conditions when at least three centers of high pressure and two centers of low pressure are not to be found between China and California, and between the equator and 80° north latitude. When the positions of the high and low pressures are known, we may proceed, like the naturalist, and learn, from the examination of some portions, those which are wanting to the whole.

In a paper on the "Average Velocities of Low-Area Storms and Upper Air Currents in the United States," Gen. Greely, signal officer, shows that the decrease in velocity of the former is regular and unbroken from February till June, while the increase is nearly as regular from June to February again. He believes that the average movement of low-area storms has a definite relation to the velocity of upper air currents.

Observations by Prof. Börnstein indicate that mountains situated on the course of storms accelerate their movement as they approach, and retard it as they go away. The presence of a river delays the storm; and sometimes, when the river is large, and the storm one of little intensity, dissipates it.

The "Thunder-storm Committee" of the Royal Meteorological Society reports that years of greater and less frequency of thunder-storms alternated regularly through nearly the whole of the period of seventeen years from 1871 to 1887. The average yearly number was thirty-nine. The greatest number occurred in July and the least in February and December.

Rainfall.—The modern views on the formation of atmospheric precipitates are set forth by Prof. von Bezold as, in opposition to the older views, based upon strictly scientific principles. At one time it was thought that the precipitates are formed by the mixing of cold air with warm moist air, when the temperature falling to a mean, so much moisture must be condensed as

corresponds to the lower saturation point resulting from the process. Now, however, it is known that both the rise in temperature of the cold air and the heat set free by the condensation of the moisture must be taken into account, so that in reality very little moisture is precipitated. Precipitation occurs only when a saturated mass of air is directly cooled, such cooling being brought about in nature chiefly by radiation and by the upward flow of currents of air. Hence the precipitations which take place on the lofty sides of mountains when the air rises along them; as a result of having been warmed, and in cyclones. Since warm dry air is carried into the cyclone from the anti-cyclone, the clouds formed at the edge of the cyclone are subsequently absorbed; thus the clouds are most dense in the center, where the pressure is a minimum, and are progressively less dense toward the periphery.

According to Prof. Loomis ("Contributions to Meteorology," Chapter III), the conditions favorable to heavy rainfall begin with the fact that the northeast and southeast trade winds, on approaching the belt of calms near the equator, and being gradually deflected upward, are cooled by expansion, so that the vapor is condensed and the belt of calms becomes a belt of rain. A second cause is the influence of mountains, for when a strong wind meets a mountain, it is forced up its slope and elevated into a colder region, and cooled to precipitation. Another favorable condition is proximity to the ocean, especially when the prevailing wind comes from the sea. Great and non-periodic depressions of the barometer are also always accompanied by rain; and the average tracks of these depressions are marked by an excess of rainfall. Among the unfavorable conditions to rain are fresh winds blowing in a nearly uniform direction throughout the year; and a position on the leeward side of a range of mountains running in a direction nearly at right angles to that of the prevalent wind. Where there is a second range of mountains, parallel and within one or two hundred miles of the first, the influence of this cause is considerably intensified; and this diminution is still more decided when a place is surrounded by mountains, or nearly so. Elevated plateaus have generally less rainfall than insulated mountain peaks of an equal elevation. Another condition unfavorable to rainfall is dryness of the atmosphere, for which the author gives three special causes—remoteness from the ocean, measured in the direction from which the prevalent wind proceeds, areas of high barometric pressure, and—to a certain extent—high latitudes. Moderate barometric depression seems to be as favorable to great rainfall as extremely great depression. One of the most common causes of rain in the United States is an unstable condition of the atmosphere resulting from an unusually high temperature combined with unusual humidity. Frequently associated with this as another very common cause is a cold northerly or westerly wind in the western segment of the low area, and proximity to the ocean or to a large inland sea. Various results revealed by the tables which Prof. Loomis has compiled, indicate that in the United States and Europe, as well as over the North Atlantic Ocean, great rainfalls are generally associated with a

barometric pressure somewhat below the mean, and the precipitation occurs chiefly on the eastern side of a low area. Along the Atlantic coast of the United States north of latitude 36°, the amount of rain that falls while the barometer is descending is very much greater (nearly three times at Philadelphia) than that which falls while the barometer is rising. Advancing westward, the ratio of precipitation while the barometer is falling, compared with that when it is rising, changes somewhat rapidly, and is reduced, before reaching the Mississippi river, to 1·32.

The influence of the presence of hills upon rainfall is illustrated by W. C. Dolberck's comparisons for ten years of the precipitation at the observatory at Hong-Kong, about 100 feet above the sea, and on Victoria Peak, about 1,800 feet above the sea. The rainfall at the peak exceeds the record at the observatory by about one sixth; and this appears to be due to the circumstance that the mountain presents an obstacle to the wind from whatever side it blows, in consequence of which the air is forced to rise, and being thereby cooled, it precipitates more moisture in the form of rain. Even when the air is moderately dry at sea level, its temperature may be decreased below the dew point in the course of such a rise. The comparatively greater rainfall in hilly districts, Mr. Dolberck believes, must be attributed to this, for a hill must, of course, exercise its influence at a distance all round.

The exceedingly abundant rainfall of the forest region of the Aruwhimi river in Central Africa is ascribed by Mr. Stanley to the moisture which is carried over the continent by the prevailing landward winds from the Atlantic, which, however, have to cross mountains and encounter a cold coast current, both factors unfitting them for precipitation so far inland. A review in "Nature" of Mr. Stanley's narrative finds the cause in the winds from the Indian Ocean. Mr. H. F. Blanford discovers in this superabundance of rain a confirmation of his theory of dynamic cooling. The equatorial position of the Aruwhimi basin and its seat in the heart of the African continent determine it, he thinks, as the seat of ascending currents which suffer dynamic cooling on a gigantic scale. Similar conditions exist in upper Assam, which is likewise girt by mountains and clad with a dense forest, where the rainfall is over 100 inches a year. As the result of a long study of the rainfall of India, Mr. Blanford has become convinced "that dynamic cooling, if not the sole cause of rain, is at all events the only cause of any importance."

Lord Rosse has described a black rain that was observed during a thunder-storm, on the 12th of April, in the counties of Galway, King's, and Tipperary, Ireland. The water in barrels was black, "like ink," and a decided blackness and scum were observed in the pools on the ground. An examined sample of the water was dark blue at first, but afterward became pale reddish brown and had a considerable amount of solid matter in suspension.

The results of Prof. A. Woeikoff's researches on the influence of a snow covering on the character of the winter and spring and its general influence on the soil, climate, and weather are given in a book which he has published on that

subject (Vienna and Olmutz, 1889). Meteorologists in India have found that the quantity of the snow-fall of the Himalayas in winter and spring exercises an important influence on the monsoon rains of the upper provinces of the country. One of the most obvious effects of the snow covering is the protection of the ground against frost. The late additional observations on this subject are of much value, particularly at the Russian polar station Segastyr, in the Lena delta. Concerning the differential cooling effect of a snow-sheet on the atmosphere as compared with that of a bare surface, we have observations at Upsala, Sweden, during fourteen years which show differences ranging from 8·5° to 10·8° Fahr. Certain anomalies in the winter temperatures of Asia and parts of North America are explained when it is shown that the lower temperatures coincide with the prevalence of snow and *vice versa*. In considering the effects on springs and rivers, we find that, in latitudes where the winter cold is sufficient to freeze the ground to a considerable depth, if heavy snow falls before the cold has penetrated deeply, the protection thereby afforded allows the ground to thaw by conduction from the lower strata, so that the water from various sources soaks into the soil and affords a supply that maintains the rivers in more or less fullness through the succeeding summer; but if the ground freezes deeply before the snow falls, the thaw-waters in the spring are confined to the surface, swell the rivers into floods, and, none entering the ground, no supply is stored up for the summer flow.

The height from which a fall of hail took place has been estimated by M. C. Dufour, whose observations were made under unusually favorable conditions, at 1,653 metres above the ground. Other observers have calculated that hail can be found at heights of 2,000 metres and upward.

The amount of impurity gathered by rain during its fall, which is found to depend more on the number of showers than on the total rainfall, has been studied by Mr. George Gray at Lincoln, New Zealand, during five years of observation. The author finds that an acre of land at Lincoln receives annually (in 28·9 inches of rain) about 179 pounds of dissolved solids. Of these, 60·5 pounds consist of chlorine, 15 pounds of sulphuric anhydride, and a little more than 2 pounds of nitrogen, one half of which is in nitric acid and the remainder in ammonium compounds and organic matter. The large amount of chlorine is accounted for by the nearness of Lincoln to the sea.

The year was remarkable on the Atlantic slope of the American continent, particularly along the strip between New York city and Virginia, for an excessive and almost continuous rainfall. The records of the Central Park Observatory, New York city, show that it rained there on 123 days and snowed on thirteen days, giving a total rainfall of 55 inches. This is the largest amount recorded during the twenty-one years that this series of observations have been kept up. The largest previous amount was 53·32 inches in 1888. The average annual rainfall for the past twenty years has been 43·15 inches. During 1889 there were 2,295 hours of sunshine out of a possible 4,284 hours, and there

were only 69 days in which clouds did not pass over the face of the sun. The observations at the Signal Service Office in New York city show that the heaviest rainfall took place in July, the amount for that month having been 9.63 inches. Next was September, with 7.43 inches. Some of the heaviest downpours were only local showers. Thus, while in New York city July was the wettest month of the year and 2.27 inches fell on the 27th, in the Catskills no rain fell during the latter half of the month. A great excess of rainfall over the normal was also observed at Baltimore, Washington, and Norfolk and Lynchburg, Va. To the north and east of New York, as at Block Island, Boston, Portland and Eastport, Me., the rainfall was below the normal. The year was also remarkable in New York for the mildness and equability of its temperature. The extremes of summer heat and winter cold were alike of unusually rare occurrence. The maximum temperature on the 9th of June was 91°, and the minimum, Feb. 24, was 3° below zero. The observatories of Western Europe remarked a period of less than normal mean annual temperature from 1885 to 1888 inclusive, during which thirty-one out of the forty-eight months were cooler than the normal.

Electricity.—Some interesting observations on the character of lightning were made at the top of the Washington Monument, five hundred feet above the streets of the city of Washington during thunder-storms in 1886. Sparks passed almost continuously between the suspending wire and the case of the electrometer. The "sparking" between the collector and the ground having ceased, it was found that when thunder-clouds are approaching the electrometer needle responds to their presence and is very active, and after considerable oscillation begins to move steadily in one direction, as if subject to a gradually increasing pull, until a sudden drop to zero occurs, and with it the flash of lightning. The steady movements of the needle are then resumed. The process is thus repeated with every flash. It is in this way possible to know just when a flash is going to occur. Peculiar sensations are sometimes undergone during thunder-storms by surveying parties, which cease whenever a flash of lightning occurs. The monument observation explains these experiences, and proves that every lightning flash relieves the electrical tension.

Some remarkable effects were observed from a flash of lightning that struck a windmill at Upminster, Essex, England, Sept. 2. The flash appeared as a network of flame that threw off thousands of sparks. The direction of the flash, as shown by its effects, was from earth to cloud. One branch of it passed through an iron chain that hung from top to bottom of the mill, fusing the links when they touched. Another branch tore up the lead lining of a gutter along which it passed, at every junction bending it in the direction of the current, while another branch perforated a board from within outward. The whole charge joined on reaching the iron-work of the sails, and, passing from this, entered the wood, when the framework was shattered, the shutters smashed and thrown about, bolts were broken, and the main shaft was splintered. Large pieces were thrown fifty yards.

Observations on the aurora borealis were made at the Swedish International Polar Station in Spitzbergen in 1882-'83 by Mr. Carlheim-Gyllenskiöld. The position of the corona was found to be nearly in the magnetic zenith, and not in the same vertical as the highest point of the arch, thus confirming the measurements made during the past century by Wilcke, Mairan, and others. The breadth of the auroral arches varies with their elevation above the horizon. The arches consist of rays running in the direction of the breadth, and converging toward the magnetic zenith. Thus they form a long fringe of rays parallel to the dipping-needle, suspended like a curtain from east to west, but with a small extent of breadth from north to south. If this curtain of rays moves from the horizon to the zenith, the breadth varies according to the laws of perspective. Besides the arches and rays, the auroral light sometimes formed a true spherical zone parallel with the earth's surface, thus floating in space as a horizontal layer of light, often crossed by several arches. These zones were apparently much broader in the zenith than at their extremities nearer to the horizon. While the movement of the arches has generally been reported as from north to south at places situated to the south of the maximum zone, and from the opposite direction at places within the maximum zone, at Cape Thorsden (the name of the station), which is north of the maximum zone, but very near it, 57.6 per cent. of the auroral arches moved from the north. The anomalous forms of arches were very frequent, and were made a matter of accurate investigation. In the phenomena of waves of light running along the arches—"the merry dancers"—in 103 cases the waves ran from west to east, and in 101 from east to west, at a mean angular velocity of 38.6" per second. The rays were sometimes observed to have a slow proper motion from west to east, or *vice versa*. The light of the aurora is described as being of two kinds—the yellow light, entirely monochromatic, and showing in the spectroscope the yellow line of Angström, and the crimson or violet light, which is resolved in the spectroscope into several rays and bands, spread over all parts of the spectrum. No sound was ever heard from the auroral light.

St. Elmo's fire has been seen and studied at various times at the Ben Nevis Observatory, where it takes the form of jets of light on the tops of all objects that stand any height above the general level of the roof of the building. The meteor is seen on an average six hours after the lowest reading of the barometer has been recorded in a depression that occurs in a general low-pressure area; it is preceded, accompanied, and followed by a falling temperature; the wind veers considerably, and goes on veering for some time after its appearance; and it is attended by heavy precipitation in the form of snow-hail.

In the observations of Prof. Assmann at the Sentis (Switzerland) on St. Elmo's fire the phenomena were acoustical rather than optical.

Winds.—A comparison of average wind velocities in the United States has been made by Mr. Frank Waldo, who draws the conclusion that there are in general in the eastern part of the country a principal maximum and minimum in March and August respectively, with a second-

ry fall maximum and winter minimum; the latter, however, is variable and does not take place for the same months in the different regions. To the westward, the spring maximum gradually changes from March to April; but the same regularity does not exist west of the Mississippi that has been observed in the Eastern States. For the stations west of the Mississippi valley and the Great Plains, the minimum occurs in August, but for those farther west and not on the coast, it has a tendency to be delayed till later in the fall.

In the relation of wind velocity to latitude, while a considerable difference was shown in the wind for two years—1881, 1882—between which comparison was made at the ocean, each year showed a maximum at about 50° latitude, which is nearly in the path of greatest frequency of "lows." For the mean of two years there was a slow increase from 22° to 32° and a rapid increase thence to about 50°, with an apparent decrease north of this line. An increase with latitude was also observed in stations of the Mississippi valley and corresponding stations north, beginning at Vicksburg. It is, however, as yet difficult to determine how much of the increase is due to latitude and how much to difference in altitude.

Experiments by W. H. Dines for determining the relation between the velocity of the wind and the pressure it exerts upon obstacles opposed to it showed that a pressure of one pound per square foot is carried by a wind of a little over seventeen miles per hour, and that the pressure upon the same area is increased by increasing the perimeter. The pressure upon any surface is but slightly altered by a cone or rim projecting from the back.

In a memoir on "General Atmospheric Movements," Von Helmholtz suggests that wind velocities, which might otherwise be much greater than they are, are limited, not so much by the friction of the surface of the earth as by the mingling and interference of different strata and currents in the atmosphere itself.

In a "Review of some Important Tornado Literature" published in the "American Meteorological Journal," Mr. Frank Waldo takes notice of the descriptions of tornadoes and the older and modern theories on the subject. For descriptions we have to look entirely to American literature, and can find little of scientific value previous to the establishment of "Silliman's Journal." The data of the phenomena, so far as they were known at the time of the organization of our Weather Bureau, are summarized in Reye's "Die Wirbelstürme," which was published in 1872. The establishment of the Signal Service Weather Bureau gave opportunity for making a systematic study of the subject, which has been improved by Finley, Ferrel, Hinrichs, and others. The beginning of what is now considered the true explanation was made in Reye's publication and Ferrel's earlier work, between which it is difficult to settle satisfactorily all the questions of priority. In a later paper ("Meteorological Researches," Part II, Washington, 1880) Ferrel published a detailed investigation of the "principles on which he regarded the theory of tornadoes to be founded. His latest and most complete paper is embodied in his "Recent Advances in Meteorology," Washington, 1885. In the former paper, con-

sidering tornadoes as "simply special cases of cyclones," he modified his analysis of the latter phenomena so as to make it applicable to tornadoes. In the latter paper the application of his dynamics of cyclones to tornadoes required much modification as regards friction and the effect of the deflective force of the earth's rotation. The initial state of the tornado was found to depend simply on the condition of unstable equilibrium for saturated air at the existing temperature; and in this respect also the reasoning was different from that applied to cyclones. Almost simultaneously with Ferrel's publication appeared Guldberg and Mohn's "Études sur les Mouvements de l'Atmosphère," which are mentioned as being of the highest importance in connection with the study of the action of tornadoes. According to Prof. Mohn, tornadoes are formed by ascending air currents which are having their vapor constantly condensed above. They are violent secondary whirlwinds which are formed on the warmer southern side of the primary cyclones. Spouts, and partly at least also tornadoes, originate when the air is in a state of unstable equilibrium. Davis's "Whirlwind Cyclones and Tornadoes" and Sprung's "Lehrbuch der Meteorologie" are also recommended. The former is popular in style and historically comprehensive.

The Signal Service has directed that none of its observers shall hereafter notice in his official reports any storm as a tornado unless it shall be a violent local storm in connection with which is noted (by day) a well-defined, pendent, funnel-shaped cloud, with attendant rotary winds of sufficient violence, over a well-marked path, to uproot trees, prostrate dwellings, carry heavy objects long distances, or otherwise leave plain evidence of unusually violent and rotary wind currents. The essential feature of the definition is the characteristic cloud funnel.

It is said in the "Pilot Chart" of the United States Hydrographic Bureau that whenever whirlwinds, water-spouts, or tornadoes occur, it is in connection with a general cyclonic storm of large area. The principles involved in their formation are almost identical with those that determine the formation of a tropical cyclone—that is, great contrasts of temperature and moisture between adjacent layers of air. In the United States and off our coasts they may therefore naturally be expected to occur to the southward of a storm center, where cold, dry, northerly winds blow over and mingle with warm, moist air from the southward. But local conditions of pressure, temperature, and moisture may cause exceptions to the general rule.

Prof. W. M. Davis has described the observations of the sea breeze made by him in 1887 at coast and inland stations in Massachusetts and southeastern New Hampshire. He found that about 10 A. M. the sea breeze began to blow normally to the coast. Later in the day it penetrated farther inland on the north shore (north of Boston) than on the south shore. It appeared that the diurnal range of temperature, which is diminished on the coast by the action of the sea breeze, is not lessened at the inland stations. This seems remarkable, since the motion of the sea breeze inland is thought to be due to the difference of temperature between land and sea. But, although the sea breeze is apparently heated

up to the temperature of the land breeze at inland stations, this may be only in its lower layers. The general theory that the sea breeze is caused by the difference of temperature between the land and water requires the breeze to begin at the shore and extend its area seaward, while observation shows that the breeze begins out at sea and works its way in shore. This may be explained by supposing that the circulation of the air is not established, but is in process of establishment, and that the quick, morning expansion of the land air causes a reverse gradient at the shore line, turning the surface winds toward the sea. This gradient disappears as the expansion of the air causes an upper outflow, and then the inland progress of the sea breeze is effected. There should in this case be a difference of barometric pressure at land and sea stations, and such observations of pressure and temperature have been made by Blanford in India. The depth of the sea breeze was determined by balloon observations at Coney Island to be between 300 and 400 feet. On mountainous islands the diurnal valley breeze is confirmed by the sea breeze. The diurnal change in the wind's direction at coast stations is explained by the combination of the land and sea breezes deflected by the earth's rotation.

Mr. W. Flinders Petrie, in a paper on wind action in Egypt, based on his own recent observations in the Nile delta, says the underlying motions of the delta are depression on the coast and upheaval at Ismailiyeh. Above these movements great changes have been made by wind action; in some sites at least eight feet of ground have been removed and deposited in the water. This has partly caused the great retreat of the Red Sea head, and tends to form the characteristic swamps of this district.

Another example of erosion by wind action has been described in the French Academy of Sciences, by M. Coutejean, as to be seen at Corinth in a cavern through which an old amphitheatre communicates with the beach. The walls of this cavern, which is formed in the sandstone stratum at the foot of the cliff, are extremely rugged and irregularly corroded, and nowhere show traces of human workmanship. The tunnel could not have been excavated either by the rains or the running waters, and its existence can be explained only by the action of the sands playing on a point of least resistance under the influence of the fierce northern gales prevalent in this region.

Bibliography.—Besides official reports, the bulletins and special papers of meteorological stations, and periodicals, the more important American meteorological publications of recent date include Prof. William Ferrel's "Popular Treatise on the Winds," Cleveland Abbe's "Treatise on Meteorological Apparatus and Methods," and a study by Prof. Gustavus Heinrich of "Tornadoes and Derechos." The reports of the Signal Office contain the details of weather phenomena for every day in the year. The publications of the Hydrographic Bureau of the Navy Department are sources of information concerning ocean weather. The New England Meteorological Society publishes regular bulletins of observations recorded at the stations with which it is in close correspondence. The

records of observations at the Blue Hill Observatory, Mass., are published under the direction of A. Lawrence Rotch. The Astronomical Observatory of Harvard College has published a summary of meteorological observations made during the years 1840 to 1888 inclusive. The "American Meteorological Journal," Ann Arbor, Mich., gives discussions of living meteorological questions by students and observers. The Argentine Meteorological Office, under the direction of Walter G. Davis, has published a volume embodying the results of climatological observations made at selected stations in different parts of the republic since 1872. Many papers of practical or theoretical value have appeared in the "Transactions of the English Meteorological Society." Mr. H. F. Blanford's "Guide to the Climates and Weather of India, Ceylon, and Burmah, and the Storms of the Indian Seas" is an important contribution to general climatology. Of similar character is the Russian A. Woeikoff's study of the "Influence of Snow Covering on Soil, Climate, and Weather," which is published in German at Vienna. Prof. A. Blytt's "Variation of Climate in Course of Time" is of great value in this study. Herr H. Fritz has published at Leipzig a treatise on the most important periodical phenomena of meteorology and cosmology. To general climatology belongs also H. Zenke's "Distribution of Heat over the Earth's Surface" (Berlin). J. Kiessling's "Investigations of Atmospheric Disturbances and Twilight Phenomena that followed the Krakatoa Eruption," with the Report of the British Krakatoa Commission, comprehend what has been ascertained on that subject. The "Equatorial Limits of Snow-fall" has been discussed by H. Fischer (Leipzig). The latest attitude of meteorology, especially with relation to geographical questions, has been reviewed by S. Günther (Munich). In a similar line is R. Dove's "Climate of Extra-Tropical South Africa, as bearing on Geographical and Economical Considerations" (German). Weather-forecasting has been discussed in our own signal-service reports, by Th. Kirsch (Breslau), and by H. Treisbann (Paderborn), and in the papers of the meteorological societies. The New England Meteorological Society has instituted a special study of thunderstorms, and numerous papers and reports on the subject have appeared in the United States and Great Britain. Besides these, G. Planté's "Electrical Phenomena of the Atmosphere," Krebe's studies at Hamburg from 1878 to 1887, Boehmer's studies of electrical phenomena in the Rocky Mountains, Riggenbach's review of the storms of one hundred and twelve years at Basle, and the instructions published by the Prussian Meteorological Office, contribute to our knowledge of these phenomena. J. Hann (Leipzig) has published "Investigations of the Daily Oscillations of the Barometer"; W. J. Van Bebbler (Leipzig), contributions to knowledge of daily periods of wind velocity on the German coasts; A. Ledendorf (Berlin), a treatise on the meteorological, physiological, and therapeutic relations of "High-Altitude Climates"; J. M. Pernter (Leipzig), "Measurements of Radiation at the Sonnblick Observatory for February, 1888"; E. Von Frey (Dorpat), estimates of the carbonic-acid content of the atmosphere at Dorpat from

September, 1888, to July, 1889; and W. J. Van Bebber, at Stuttgart, a "Text-Book of Meteorology for Students and for Practical Use."

The first part of the "Bibliography of Meteorology," by the Signal Service Office at Washington, includes all the titles of books and articles bearing on the subject of temperature to the close of 1881. Similar titles, covering the period from 1882 to 1877, have been prepared, to be given hereafter.

METHODISTS. I. Methodist Episcopal Church.—The following is a summary of the statistics of the Methodist Episcopal Church for 1889, as they are given in the "Minutes of the Annual Conferences" for 1889: Number of annual conferences and missions, 129; of traveling preachers, 13,279, with 1,779 on trial; of local preachers, 13,455; of members, 1,998,293; of probationers, 238,170; total of members and probationers, 2,236,463; of baptisms, 74,015 of children and 101,062 of adults; of Sunday-schools, 25,590, with 287,192 officers and teachers, and 2,222,728 pupils; of churches, 22,103; probable value of the same, \$99,544,593; number of parsonages, 8,082, having a probable value of \$13,386,193. Conference contributions for benevolent causes: For the Board of Church Extension, \$151,229; for the Sunday-School Union, \$22,370; for the Tract Society, \$21,085; for the Board of Education, \$103,991; for the Freedmen's Aid and Southern Education Society, \$97,256; for the American Bible Society, \$34,369; for the Missionary Society, \$1,011,311; for conference claimants, \$217,490. There were also recorded contributions of \$206,680 for the Woman's Foreign Missionary Society, and \$99,654 for the Woman's Home Missionary Society.

The General Committee of Church Extension met at St. Louis, Mo., Nov. 21. The treasurer reported that the receipts of the board for the year had been: On the General fund, available for general work, donations, etc., \$183,193; on the Loan fund, \$94,586; total, \$277,779. The entire receipts since the organization of the board had been \$3,725,899, and the whole number of grants made had been 7,066. The Loan fund had grown steadily, and now returned a total capital, in cash and productive property, of \$648,822; of which amount \$367,192 remained subject to annuity. Grants were out to 288 churches, in donations and loans, to the amount of \$103,140, while applications were on file from 29 churches, asking for \$16,550, making the amount required for work already in hand \$119,690. The society owns a building valued at \$31,164, on which it is indebted \$19,657. Ap-

propriations were made for the ensuing year, and contributions asked for, to the amount of \$253,350.

The annual meeting of the Board of Education was held in New York, Dec. 4. The treasurer's report showed that the collections had increased during the year from \$31,027 to \$43,376, or 36 per cent., and the return loans from \$2,275 to \$2,807, or 24 per cent. The total income from all sources had been about \$57,000, and the amount of invested funds was about \$212,000. The sum of \$42,500 was appropriated for students during the current school year. Eight hundred students in one hundred schools had been aided, and the whole number of beneficiaries to date was 2,837. Measures were discussed concerning the adoption of an annuity plan for receiving funds and for securing a better form for educational statistics.

The receipts from the Church in behalf of the Sunday-School Union during the four years ending in 1888 were \$73,714. Grants of money had been made to 3,500 schools, while the grants to Sunday-school work in foreign lands had amounted to \$10,000. The aggregate circulation of English Sunday-school periodicals for the year had been 27,212,700 copies, and of German periodicals, 1,689,600 copies; in addition to these publications 1,109,363 volumes had been published in Sweden, Germany, Italy, Switzerland, India, Japan, and Mexico.

The receipts of the Tract Society for four years had been \$67,164. Grants of money had been made to Sweden, Denmark, Finland, Germany, Switzerland, France, Italy, Belgium, India, China, Corea, and Mexico amounting to \$21,000. Four hundred and seventy new tracts had been added to the list, besides 134 new tracts in German, and tracts in French, Spanish, Italian, Swedish, and Bohemian.

The Epworth League, which was organized in May, 1889, by the union of several young people's societies, for the purpose of enlisting the youth of the Church in active Christian work, and of enlarging their religious experience, had, on the 1st day of November, 1889, 1,500 enrolled chapters or local leagues, and more than 60,000 members.

The annual meetings of the Freedmen's Aid and Southern Education Society were held in Cincinnati, beginning Dec. 14. The total receipts for the year had been \$221,843, and the expenditures \$218,258. The indebtedness of the society was \$132,698. The institutions supported by the society are represented in the following table:

GRADE OF SCHOOLS.	AMONG COLORED PEOPLE.			AMONG WHITE PEOPLE.			TOTAL.		
	No.	Teachers.	Students.	No.	Teachers.	Students.	No.	Teachers.	Students.
Collegiate.....	8	134	3,090	4	51	958	12	146	4,048
Theological Seminary.....	1	4	71	..	..	..	1	4	71
Biblical departments.....	4	14	158	2	5	40	6	19	198
Medical departments.....	2	11	55	..	..	..	2	11	55
Dental department.....	1	8	11	..	..	..	1	8	11
Legal department.....	1	6	6	2	7	61	3	13	67
Industrial departments.....	12	70	1,455	..	..	..	12	70	1,455
Academies.....	12	60	1,810	16	54	1,759	28	114	3,569
Total *	21	223	4,971	20	105	2,717	41	328	7,688

* In these totals students and teachers are counted but once, and departments are *not* counted as separate institutions.

The report of the corresponding secretary assumed that the wisdom of placing the entire educational work under the care of a single society had been tested and approved by the Church. As touching the relation of the races in the system of schools in the South, the policy of the Church was clear and defined, and could be summarized as follows: 1, one society and administration for the people and conferences; 2, schools among white people and schools among colored people to be so located as best to serve the interests of the conferences to be benefited; 3, no exclusion on account of race, color, or previous condition. Separation in schools, as in conferences, to be by the voluntary choice of the people themselves. Steps had been taken during the year looking to a more perfect grading and unifying of the schools in the South. It had been decided by the Executive Committee to designate, among the colored people, eight central schools, as collegiate centers, where college courses should be pursued in addition to the academic courses; and Gammon Theological Seminary had been fixed upon as the central theological school, while at the other schools only biblical departments should be established, where partial theological courses might be taught. Among the white people four schools, since reduced to three, were fixed upon as collegiate centers, with which the twenty academies are to be united as feeders to their respective colleges.

The eighth annual meeting of the Board of Managers of the Woman's Home Missionary Society was held in Indianapolis, Ind., Nov. 7. The report of the treasurer showed the financial condition of the society to be: Balance from the previous year, \$15,077; receipts for the current year, \$62,457; expenditure, \$67,809; balance to be carried over, \$9,734. The total receipts in cash and supplies since the organization of the society had been \$404,997. Of the \$120,000 appropriated in the previous year the expenditure of \$58,000 was conditioned upon gifts for specific objects designated by donors. Among these was the Peck Home at New Orleans, which had been completed. Special funds were held for use in the erection of five other homes.

The General Missionary Committee met in Kansas City, Mo., Nov. 13. The treasurer reported that the receipts for the year ending Oct. 31, 1889, had been \$1,130,137, or \$129,556 more than the receipts of the previous year. The treasury was in debt \$97,769.

Appropriations were made for the continuance of the work during the ensuing year on the several mission fields, as follows:

I. FOREIGN MISSIONS:

Africa.....	\$7,300 00
South America	50,960 00
China.....	103,019 00
Germany.....	29,910 00
Switzerland	9,340 00
Scandinavia	45,430 00
India.....	112,800 00
Malaysia	6,500 00
Bulgaria.....	18,120 00
Italy.....	46,085 00
Mexico.....	53,403 00
Japan.....	58,193 00
Corea.....	16,074 00
Lower California	1,000 00

Total for Foreign Missions \$566,139 00

Total for Foreign Missions..... \$566,130 00

II. MISSIONS IN THE UNITED STATES NOT IN ANNUAL CONFERENCES, TO BE ADMINISTERED AS FOREIGN MISSIONS (comprising missions in Arizona, the Black Hills, Nevada, Utah, Wyoming, the Indian Mission Conference, and German and Scandinavian missions in the Northwest)

III. DOMESTIC MISSIONS:

Welsh missions	\$1,900 00
Scandinavian missions	37,720 00
German missions	38,125 00
French missions	7,550 00
Chinese missions.....	9,500 00
Japanese missions	5,900 00
American Indian.....	4,600 00
Bohemian and others.....	9,570 00
English-speaking	259,341 50
Total for Domestic Missions, including missions in the United States administered as Foreign Missions.....	459,970 00

IV. Miscellaneous

99,691 00

V. For outstanding drafts.....

74,200 00

Grand total \$1,200,000 00

The latest summaries of the condition of the mission fields are for 1888, and give the following footings: *Foreign missions*—number of foreign missionaries, including assistant missionaries and women, 338; foreign teachers, 69; of native preachers, ordained and unordained, teachers, helpers, etc., 2,674; of members, 46,432; of probationers, 16,863; of adherents, 49,319; average attendance on worship, 89,704; number of baptisms during the year, 2,909 of adults and 3,260 of children; number of pupils, 258 in theology, 3,564 in 36 high schools, 26,697 in 747 day schools, and 112,928 in 1,944 Sunday-schools; number of orphans cared for, 858; estimated value of church and school property, etc., \$2,563,252; debt on real estate, \$441,637; amount of collections for the Missionary Society, \$10,925; for other benevolent societies, \$13,951; for self support, \$92,032; for church building and repairing, \$55,536; for other local purposes, \$71,718; volumes printed during the year, 655,976. *Domestic missions*—number of missionaries and assistant missionaries, 4,867; of teachers and native assistants, 61; of local preachers, 3,102; of members, 242,386; of probationers, 40,660; of baptisms, 14,468 of adults and 12,304 of children; of pupils in 4,977 Sunday-schools, 241,610; estimated value of church property, \$6,934,509; debt on real estate, \$663,621; amount of collections for the Missionary Society, \$51,744; for other benevolent societies, \$36,920; for self support, \$966,809; for church building and repairing, \$591,412; for other local purposes, \$107,505.

The annual meeting of the executive committee of the Woman's Foreign Missionary Society was held in Detroit, Mich., in November. The receipts for the year had been \$226,496, or \$20,187 more than in the previous year. Appropriations were made for the ensuing year to the amount of \$247,454. Fourteen new missionaries were appointed. A Christian college for girls at Lucknow, India, was sanctioned for two years, with the intention of making it permanent if an adequate endowment fund can be secured.

II. Methodist Episcopal Church South.

—The statistical tables of this church, published in connection with the "Minutes of the Annual Conferences," furnish the following footings: Number of traveling preachers, 4,687; of local

preachers, 6,309; of white members, 1,123,498; of colored members, 654; of Indian members, 4,958; total of preachers and members, 1,140,097; net increase during the year, 32,641; number of baptisms—of adults, 52,363, of infants, 31,052; number of Sunday-schools, 12,215, with 85,694 teachers and 672,896 pupils; of churches, 11,432, having an estimated value of \$16,030,254.

III. Methodist Church of Canada.—The following is a summary of the statistics of this church, by conferences, as given in the "Annual Minutes" for 1889:

CONFERENCES.	Number of members	Contributions for missions.	Total contributions.	Pupils in Sunday-schools.
Toronto.....	38,472	\$48,513	\$429,789	41,969
London.....	26,632	19,076	106,075	26,451
Niagara.....	26,022	28,946	200,938	25,122
Guelph.....	28,294	19,078	200,565	26,089
Bay of Quinte.....	29,163	19,345	192,691	25,312
Montreal.....	33,083	87,490	815,246	28,625
Manitoba.....	8,762	7,951	92,396	6,733
British Columbia.....	2,900	8,470	36,845	1,936
Nova Scotia.....	13,836	14,652	115,073	12,999
New Brunswick and Prince Edward Isld.	11,323	8,641	.....	12,649
Newfoundland.....	10,447	6,296	.....	9,852
Total.....	223,939	\$213,458	.....	217,737

The total income of the Missionary Society for the year ending in June, 1889, was \$215,775, and its expenditure was \$210,692. The society sustained domestic missions in all the conferences, Indian missions in eight conferences, French missions in the Montreal Conference, Chinese missions in the British Columbia Conference, and a foreign mission in Japan; altogether employing 596 paid agents and returning 46,944 members. The Indian missions returned 4,697 members. The mission in Japan, with 1,538 members, had been organized into an annual conference.

The programme of arrangements has been published, by the committee having the subject in charge, for a celebration of the centennial of Canadian Methodism, to be held in connection with the ensuing quadrennial session of the General Conference, which will take place in the fall of 1890. It contemplates a public meeting to be held in Montreal during the meeting of the General Conference there, and meetings and celebrations under the direction of the Annual Conferences, to be held after the session of the General Conference. The objects of these meetings will be: Thanksgiving to God and the education of the people in the history, doctrines, and polity of the church; and the raising of funds, by contributions and subscriptions, one half of which shall be appropriated to the sustentation funds of the several conferences, and the remainder to the extinction of the debt of the Union Church Relief fund and to the formation of a General Church Extension fund. The plan further comprehends the preparation of historical sketches and papers on various subjects pertaining to Methodism, to be published in a Centennial volume. Among them will be a paper on the "Origin and Providential Mission of Methodism"; Historical Sketches of the Wesleyan and New Connection Methodist Churches of Canada; of Methodism in the Eastern Provinces; of the Methodist, Methodist Episcopal, Primitive Meth-

odist, and Bible Christian Churches in Canada; on "The Union Movement in Canada"; "Methodist Literature and the Sunday-School"; "Canadian Methodism in Relation to Education," and "Statistics."

IV. Wesleyan Methodist Connection.—The following is a summary of the statistics of the British and affiliated conferences as they are given in the "Minutes of Conference" for 1889:

CONFERENCES.	Ministers.	On trial.	Super-numeraries.	Members.	On trial.
Great Britain.....	1,579	108	288	420,688	33,921
Ireland and Irish missions.....	167	28	39	25,306	654
Foreign missions.....	249	114	12	33,166	4,593
French Conference.....	25	.....	5	1,445	96
South African Conference.....	140	20	13	27,255	964
West Indian Conference.....	67	19	3	45,930	2,158
Total.....	2,827	289	360	554,104	51,036

The numbers of ministers in the Australasian and Canadian churches are not included in this table, but are given in the minutes of their respective conferences. The committees in charge of the several funds of the connection reported to the conference the following as the amounts of their receipts from all sources for the year: Foreign missions, £150,364; home missions, £37,490; Auxiliary fund, £31,436; Ministers' Children's fund, £28,967; Schools fund, £20,681; theological colleges, £11,670; General Chapel fund, £9,060; Education fund, \$5,980; fund for the Extension of Methodism, £4,655.

The annual meeting of the Wesleyan Missionary Society was held in London, April 29. Mr. T. Morgan Harvey presided. The ordinary income of the society for the year had been £105,000; but although it exceeded the ordinary income of 1887, it had not met the expenditure of the year. It had, however, been supplemented by the proceeds of other sources of income, so that the committee had been able to balance the year's accounts and apply £6,487 to the reduction of the debt. The report of the mission work represented the Continental missions as making encouraging progress. In the West Indies and Central America, the conferences were occupying new ground. Native brethren trained in England had been appointed to vacant posts on the west coast of Africa, but supervision and direction could not be relaxed at present. Rapid movements of population in South Africa had caused new congregations to gather, calling for pastoral service. The committee might be compelled by the local law to sell the mineral rights on some of its lands in this region. If this were done, the proceeds would be devoted to lessening the annual charges on account of the missions. Success in China had added to the opportunities for extension. Criticisms against the methods of work pursued in India were answered in detail, so as to show that the society was continuing to act on the principles that had been recognized from the beginning.

The Wesleyan Conference met in Sheffield, July 23. The Rev. Charles H. Kelly was chosen President. A committee appointed at the previous conference to consider the tests of mem-

bership—or the relations of communicants to the church, and the advisability of recognizing as members godly persons who will not attend class—reported that non-attendance at class was not a sufficient reason for removing a name from a class-book. A committee appointed to consider the means of preventing waste and friction among the various Methodist bodies, particularly as represented in the same town, and of promoting brotherly intercourse between them, reported that it was impossible to formulate any specific arrangement whereby there might be a withdrawal in places where the work of the various Methodist bodies develops. At the same time, in order to promote brotherly intercourse, the recommendation was made that where it should be deemed practicable and desirable, united meetings for Christian fellowship should be held; an interchange of pulpits should be occasionally arranged; and meetings of ministers and other representatives of the churches should be held from time to time. The Conference decided to reduce the length of time that must elapse before a minister can return to any circuit from six years to three. The order of holding the pastoral and the representative (of which layman constitute a part) sessions of the Conference was modified: so that instead of beginning the Conference with the pastoral session and closing with the representative session, there will be first a pastoral session, in which, however, no vote shall be taken on questions affecting both orders till it shall have been also considered in the representative session; then a representative session, in the second week of the Conference; and following this a second pastoral session. Resolutions were adopted defining and defending the policy pursued under the direction of the missionary society in the foreign missions, particularly in India, to the effect that the main work of the Wesleyan Missionary Society has always been evangelistic rather than educational; that, indeed, the latter kind of work is wholly subordinate to the other; that it is necessary to sustain the existing mission-school agencies; and that the success which has attended missionary labors among the lower castes and non-castes is occasion for joy, and indicates that increased effort should be exerted in this direction. Further inquiry was ordered into this subject. A committee was appointed to consider the relations of the educational interests of the Connection as affected by the operation of the Local Government Bill, and to represent the Conference in case of parliamentary legislation on the subject. An application from the Institute of Journalists for the admission of professional reporters for the press was declined. A home for lay evangelists, instituted by the Rev. Thomas Champness, at Rochdale, was recognized, and a special appointment to the charge of it was given to its founder. It was represented that some seventy or eighty men were under the care of the institution, who were sent out to needy districts to do evangelistic and revival work under the eye of the superintendent of the circuit within the limits of which they may be laboring. A special agent was appointed to secure funds for the continued maintenance of the London City Mission. In connection with this a plan was approved for the establishment of a Methodist settlement in

southeast London, a center for evangelistic work and social culture, after the model of "Toynbee Hall," for which funds have been assured to start it and maintain it for six years.

V. Primitive Methodist Connection.—The Primitive Methodist Conference met at Bradford in May. The Rev. Joseph Toulson was chosen president. The method of electing students to Manchester College and the recognition to be given to evangelists received attention. Respecting the latter subject a special committee was appointed to prepare a scheme for the recognition of a distinct order of evangelists, the same to be sent to the quarterly meetings of the stations in December and thence to the district meetings and the Conference of 1890. A United London Committee, composed of two of the regular standing committees and the committees of the two London districts, was appointed to prepare the best scheme of evangelization in London. The General Committee was directed to prepare legislation, to be considered by the Conference, on the question of allowing any person who sells intoxicating drinks to hold any office or conduct any service in the Connection, and on the class meeting as a test of membership. Separate lists of books for examination were provided for university graduates desiring to be examined as ministerial candidates, and for ministers on probation who have been graduated in arts. For the purpose of compelling investigation and discipline in cases of misconduct by official members in high position, power was given to the committee of each district to call upon any station to take official action when it is believed by the committee to be necessary and to send a deputation to the court of the station to see its direction fully carried out. Each district committee was authorized to send one representative to the "Methodist Ecumenical Council," to be held in the United States in 1891, at its own expense.

VI. United Methodist Free Churches.—The statistical reports of these churches, presented to the Annual Assembly, in July, give: Number of ministers, 370; of local preachers, 3,356; of leaders, 3,908; of church members, 77,343; of probationers, 8,116; of chapels, 1,387; of preaching rooms, 201; of Sunday-schools, 1,366, with 26,707 teachers and 203,883 pupils.

The Annual Assembly met in Redruth, July 9. The Rev. R. Abercrombie was chosen president. Owing to a change in the time of closing of the connectional year, the reports of the funds, unless otherwise mentioned, were made for nine months. The profits of the Book-Room had been nearly £400. One hundred thousand copies of the new school hymn-book had been disposed of in eighteen months. The Chapel Relief fund had received £804, the Loan fund had a capital of nearly £12,000, the sum of £31,448 had been expended in church building during the year. Fifty-four pupils were attending Ashville College. The receipts of the Beneficent and Superannuation funds had been £6,370 and the expenditure £5,248; the capital amounted to £37,402. The home and foreign mission account returned an income of £20,429 and an expenditure of £18,472. The Fire Insurance fund, instituted at the previous Annual Assembly, had gone into successful operation, and had issued

159 policies. Four persons were engaged in evangelistic work under the direction of the Assembly's committee and had conducted 74 missions. The Connectional Temperance League returned 74,105 members, showing an increase of 3,512. A committee was appointed to meet with a similar committee already chosen by the Methodist New Connection for conference on the desirability and practicability of an organic union between the two bodies. A deputation appointed by the previous Annual Assembly to visit the mission in Jamaica reported concerning the settlement of chapel property and the adjustment of other matters there. A proposition to contribute £300 toward a fund which the British African Trading Company was collecting for the purchase of the freedom of fugitive slaves who had taken refuge at stations on the east coast of Africa was vigorously debated. It was objected that to make the grant would be to sanction traffic in human flesh and blood, encourage further applications, and promote interests that were solely commercial. On the other hand, the interests of humanity and religion were urged, and the measure was held to be politic. The matter was referred to the Connectional and Missionary Committees, with power to take such action as they might deem expedient.

The annual meeting in behalf of the United Methodist Free Church missions was held in London, May 13.

VII. Methodist New Connection.—The statistical reports of this body, presented to the Conference in June, showed that it embraced 196 ministers, 1,255 local preachers, 30,760 members, and 5,187 probationers, with 510 chapels, 11,292 teachers, and 82,263 pupils. The net increase of members was 382, of probationers 91, and of pupils 2,391.

The ninety-third annual Conference met at Dudley, June 10. The Rev. Alfred R. Pearson was chosen president. The returns of the voting in the quarterly meetings on certain proposed amendments to the Connectional rules showed large majorities in favor of substituting the word "church" for society; of an alternative test (other than that of attendance on class meeting) for church membership; of instituting a circuit Sunday-school officer; of an increased minimum of ministers' stipends; and of provision for afflicted ministers. On the subject of a test for church membership, the Conference, while it recorded its conviction of the intrinsic value of the class meeting as a means of maintaining Christian fellowship and promoting spiritual life, and its appreciation of the esteem in which it is held, yielding to the desire of a majority of the Connection as expressed in the voting for some modification of the conditions of membership, enacted the rule that, while the class-book should still be kept as the only basis of enumeration, "members shall be received who comply with the essential conditions of Christian fellowship by attending the public ordinances of worship, the Lord's Supper, and the class meeting or fellowship meeting or church meeting." The special regulations concerning the admission and registry of members were modified in adaptation to the new rule. A committee was appointed to confer with a similar committee rep-

resenting the United Methodist Free Churches in order to ascertain how far the question of union is feasible.

VIII. Bible Christians.—The following is a summary of the statistics of the Bible Christian Connection, in the home and colonial stations, as presented to the Conference in August: Number of itinerant preachers, 247; of local preachers, 1,845; of chapels, 839; of preaching places, 165; full members, 30,754; members on trial, 1,115; of juvenile members, 709; of teachers, 9,087; of pupils, 51,427.

The Conference met in Holsworthy, Aug. 1. The Rev. Mark Brokenshire was chosen president. The income for missions at home and abroad was returned at £7,043, and the expenditure at £7,834. The home missions were prospering. The Conference decided to open a considerable number of new missions in large towns. The receipts of the Chapel fund had been £25,688. The year's business in the Book-Room had been the most successful in the history of that institution. A committee was appointed to consider and define exactly what should be understood by a "special case" permitting the extension of the pastoral term beyond the ordinary limit, and the Conference determined that no special cases should be considered at its ensuing session until this decision had been presented for discussion.

The annual meeting in behalf of the Bible Christian Missions was held in London, April 30. The report embodied a brief history of the society for sixty-eight years. The first foreign mission had been established in Yunnan, China, in co-operation with the China Inland Mission.

MEXICO, a confederated republic of North America; area, 761,640 square miles. It is divided into twenty-seven States, one Federal District, and one Territory (Lower California). The population is 12,328,609, the gain from 1880 to 1888 having been 1,487,701. Nineteen per cent. of the population are whites, 38 per cent. pure Indians, and 43 per cent. mixed races. The census recently taken of the Federal District shows the population of the city of Mexico and suburbs to be 451,246.

Government.—The President is Don Porfirio Diaz, whose term of office will expire on Dec. 1, 1892. His Cabinet is composed of the following ministers: Foreign Relations, Señor Ignacio Mariscal; War, Gen. Pedro Hinojosa; Public Works, Gen. Pacheco; Justice, Señor Joaquin Baranda; Finance, Señor Mannel Dublan; Interior, Señor Manuel Romero Rubio. The Minister to the United States is Señor Matias Romero; the United States Minister at Mexico is Hon. Thomas Ryan; the Vice-Consul-General is William M. Edgar; the Mexican Consul-General at New York is Dr. Juan N. Navarro.

Boundary Line.—The ratifications of the Boundary-Line Convention were exchanged at Washington on Oct. 12. The convention provides that, as the original convention of July 29, 1882, between Mexico and the United States, providing by the resurvey of their boundary line, has lapsed for reason of the failure of the two governments to provide for its further extension, its term shall be extended for a period of five years from the date of exchange of ratification hereof.

Fiscal Differences with the United States.

—Section 2,501 of the United States Revised Statutes provides that a discriminating duty of 10 per cent. *ad valorem*, in addition to the duties imposed by law, shall be levied on all goods that shall be imported in vessels not of the United States, except where entitled, by treaty or act of Congress, to exemption from such discrimination. The old treaty under which goods in Mexican vessels were exempted had long expired, and this left Mexico almost the only commercial state of importance on such a footing with the United States. A Mexican vessel entered the harbor of New Orleans with a dutiable cargo, and the collector imposed the discriminating duty of 10 per cent. Appeal was made to the Secretary of the Treasury, who sustained the action of the collector. Subsequently the Treasury Department issued an order obstructing the importation duty free into the United States of Mexican argentiferous lead ores, which had been so admitted for eight years. One of the regulations prescribed that the products of different Mexican mines shall not be mixed together before arriving at the American custom houses, the ruling being that if the ore has more of value in lead than in silver it is to be subject to a duty of $1\frac{1}{2}$ cent a pound, and it is the duty of customs officers to decide which is the preponderating metal. If the importers bring any ores in which the lead preponderates over silver in value, they have the alternative to pay the duty or take it back. In any case of attempted fraud the Government may confiscate the lot. Another regulation prescribed that the value of lead in Mexican ores shall be the value of lead in New York minus one cent a pound. The result of these regulations was the decrease of Mexican silver-lead importation into the United States by half. On Aug. 27 the Mexican Government began to retaliate by imposing a duty on living animals and fresh meat, which had been on the free list, these new duties being for horses, \$20 a head; for lambs and sheep, 35 cents; for swine, \$2.25; for beef cattle, \$3; for mules, \$2; and for fresh meat, $4\frac{1}{2}$ cents a pound. Sausage, smoked and salted meats—including hams and shoulders—per kilogramme net, 25 cents; geldings, each \$40.

Finances.—The foreign debt amounts to \$75,000,000, and the home debt to \$16,000,000. On May 1, 1889, Mr. Bleichroder, the Berlin banker, made a demand for the remainder of £2,900,000 of the 6-per-cent. loan of £10,500,000 authorized in December, 1887. The Minister of Finance has reduced the foreign debt by \$88,000,000 in four years, and paid off a large amount of floating debt besides. The actual income proves to have been \$40,962,044 in 1887-'88, compared with \$32,126,508 in 1886-'87. During the autumn of 1889 the Government floated a 5-per-cent. loan for £2,700,000 in Germany. The 5-per-cent. loan of the city of Mexico for £2,400,000 was placed in London early in March at 70, £1,000,000 additional being optional should be required for the drainage of the valley of Mexico.

The coinage of Mexican mints up to Jan. 1, 1888, was \$112,671,000 gold, \$3,194,111,828 silver, and \$5,940,438 copper, a grand total, since the conquest, of \$3,312,723,266. The Mexican mints coined in 1888 \$6,276,364 of silver.

The Army.—The strength of the permanent army is 30,000, commanded by 2,000 officers. The available forces are 67,000 foot, 13,312 horse, and 25,000 artillery; in actual war they would be 160,000 of all arms.

Postal Service.—The number of items of mail-matter handled by the Mexican post-offices has increased from 5,788,182 domestic in 1880 to 27,390,288 in 1888, and foreign from 1,366,608 to 1,627,146. In 1880 the net receipts were \$605,652, in 1888 \$805,784. The representative in the city of Mexico of Thomas A. Edison made, in November, a contract with the Government for the establishment of a phonographic postal service.

Commerce.—From June 30 to Dec. 31, 1888, Mexico exported \$8,280,499 worth of merchandise, against \$7,710,235 during the corresponding period of the previous fiscal year; and \$18,566,492 specie and bullion, against \$16,567,182; indicating a total exportation for the year 1888-'89 of \$53,000,000, the largest ever known. The exportation to the United States alone during the fiscal year 1887-'88 was \$13,144,510 worth of merchandise, and \$17,915,116 of specie and bullion (nearly all silver), while Mexico imported from the United States in the same fiscal year \$19,039,540 worth of merchandise and \$225,134 coin. The statistics (of merchandise only) published at Washington present, for the calendar years 1888 and 1887, the following figures:

YEAR.	Import from Mexico into the United States.	Domestic export from the United States to Mexico.
1887.....	\$16,294,173	\$8,369,531
1888.....	17,628,873	9,607,067
Increase	\$1,334,700	\$1,237,536

Railroads.—The number of kilometres in running order on April 1, 1889, was 8,022. The annual meeting of the Mexican Central stockholders was held on April 30, in Boston. The annual report shows: Gross earnings for 1888, \$5,774,331; increase over 1887, \$887,752. Expenses, \$3,418,837; increase, \$701,384. Net earnings, \$2,355,493; increase, \$188,367 (this is in Mexican currency); equivalent in United States currency, \$1,748,458; increase, \$68,163. Subsidy, \$440,932; increase, \$236,087. Surplus, \$223,049; increase, \$233,517.

In August, a concession was granted to Richard Honey, an Englishman, for the construction of the Zacualtipan Railroad. He is authorized to construct a line from Pachuca to Tampico, passing through the rich manufacturing districts of Apulco and Tacualtipan, with the right to build branches to connect the Tulancingo, Trinidad, Los Reyes, Encarnacion, and the Guadalupe Iron Works with the main line. He receives on the main line a subsidy of \$9,000 a mile.

On Nov. 12 work was begun on the Chiapas Railroad, the engineer's camp being pitched at San Cristóbal de las Casas. About the middle of the month the Government authorized the construction of a railroad from Bagdad, on the Gulf of Mexico, to Matamoros, opposite Brownsville, Tex. The Interoceanic Railway to Perote was opened on Nov. 17; the last contract for the completion of this railroad from Mexico to Vera Cruz was signed during the month. Two sub-

contractors are to close the gap of 132 kilometres between Yalapa and Vera Cruz by Dec. 31, 1890, with a force of 10,000 men. A contract has been made between the Government and Señor Gonzalo Esteva for the construction of a railroad from Guadalajara west to Chamela, on the Pacific, and east to Aguas Calientes.

In November the Department of Public Works granted a concession for the longest line of railway ever projected in Mexico. It will begin at the American frontier and run to Guatemala, with branches east and west. The subsidy promised is \$8,000 a kilometre. Surveys were in progress for a line of railway from the city of Guatemala to the Mexican border, where connection will be made with the Mexican Pacific road now under survey. The concession recently granted for a railway from Camargo and the Rio Grande to Mazatlan is strongly supported by New York capital. The "Official Gazette" has also published the terms of a concession for a railroad from Matamoros to Tuxpan, and thence to the Tehuantepec Railroad and a point in Yucatan, with branches from Tuxpan to the Guatemalan frontier and the city of Mexico. The Tampico division of the Central Railway was to be opened Feb. 5, 1890. An elevated railroad is to be built in the city of Mexico by an American Company.

Telegraphs.—The length of lines in operation increased from 16,910 kilometres in 1880 to 41,507 in 1888. In 1880 the number of telegrams sent over the Government lines did not exceed 381,607; in 1888 it was 671,444.

New Steamship-Lines.—In November the Government of the State of Vera Cruz agreed to subsidize a line of steamers on the rivers near the coast of Sotavento. One vessel was then ready for the work, and three others were being built in the United States. The Senate approved a contract with Señor Romano for a line of steamers connecting the Gulf ports.

Public Lands.—President Diaz, in his message of April 5, said: "The operations effected in the sale of public lands, especially in some of the border States, have been fertile of happy results, for large areas have thus been opened up which formerly were unproductive, the value of private property has been enhanced, and the revenue of the States in question has increased." Several contracts were made with land companies receiving a grant of one third for the Government lands they survey and register at their expense. They thus received grants in 1888 of 11,270,508 hectares (of 2½ acres). At the same time the Government sold or granted to villages 12,642,446 hectares, leaving 11,036,407 hectares of Government lands still to be disposed of out of a twelvemonths' surveying and registering.

The Government contracted in November with Gen. José Ceballos for the construction of wharves at Guaymas, Sonora.

Industrial Progress.—In November the Government made a contract for the planting of India-rubber trees in the State of Oajaca. The *concessionnaires* are to receive three cents for each tree planted, and all needed machinery and appliances are to be allowed to enter duty free. They engage to plant 1,000,000 trees the first year, and each succeeding year 1,050,000, till 15,000,000 are planted. Six years are required for

the rubber tree to come to maturity, after which the yield is steady.

Large quantities of Mexican hemp, commonly called henequen or sisal grass, have been planted during the year in Chiapas. The State of Sonora has paid a premium on wheat exports, and under this stimulus 518 tons were shipped in 1889 *via* Nagales to Liverpool. The manufacture of cigars for export is also becoming an important branch of industry, owing to the excellent quality of the tobacco grown in Vera Cruz and Tamaulipas. One manufacturer of Vera Cruz has recently shipped to England in one year £50,000 worth of cigars.

The Tlahualilo Agricultural Company in the autumn of 1889 put 2,000 more laborers at work on its new irrigation canal.

Preparations were going on in the city of Mexico in the summer for consolidating under one company all the iron works in Southern Mexico; and a powerful organization, known as the Mexico Company of London, concluded arrangements with owners of mines and iron works and Richard Honey, of that city, *concessionnaire* of the Tampico Railroad, for taking all their properties. Several million dollars are to be invested in adding to the existing plant, and a large steel-making plant will be set up.

Guadalajara is to have two manufactories of linen, one of silk, and one for the extraction of fibers. The Mexican Minister of Public Works has formed a company for the culture of ramie.

Mining.—At the Santa Elena mine, in Guerrero, rich discoveries of copper ore were made in October. The ore produces 90 per cent. of copper, with a fair percentage of gold and silver. The Vadelista mines, in the same State, which were recently examined by French engineers, were abundantly producing silver ores yielding \$500 a ton. The State of Chiapas experienced in 1889 a revival in mining.

In September, several rich opal deposits were discovered in the State of Queretaro. During the month the Mulatos mine, near Guaymas, Sonora, was purchased by an English company for \$2,000,000. Another English company bought the Hermenegilde galena mine.

Another English company, the Santa Fé Prospecting Company, of London, with a capital of \$300,000 in gold, began in September exploring the country around the Santa Fé copper mine region. The aggregate capital of the companies that are to operate copper properties in Chiapas is \$2,500,000.

In August petroleum in large quantities was discovered in Chiapas.

The Mexico Drainage Tunnel.—A contract was signed on Aug. 28 between the city of Mexico and Read & Campbell, English contractors, for an extension of the valley drainage tunnel four miles, making its entire length nine and three quarter miles, the work to be completed within three years. The tunnel is to connect with the canal that is to convey the surplus water beyond the valley, and takes the place of the projected deep cut. This firm holds a subcontract from the Mexican company that negotiated the municipal loan for a nine-and-a-half-kilometre tunnel, of which the four-mile contract signed becomes the city end, the other end, an open cut, having been completed.

Education.—The public schools numbered 8,536 in 1880; in 1888 there were 10,726, the number of pupils having increased during the intervals from 435,965 to 543,977.

Volcanoes.—The volcano of Colima was active during most of the year 1889. It is thirty miles north of Colima and its crater is 12,000 feet above sea level. It was throwing up during the year, intermittently, a column of smoke and red-hot ashes hundreds of feet high. These spasmodic eruptions have occurred ten or twelve times a day, and have been followed by reports like artillery. At night the sudden eruptions presented the appearance of gigantic fireworks, and the sudden spurts illuminated the country for miles around.

Earthquakes.—There was a sharp earthquake in the city of Mexico at 3.30 p. m. on Sept. 6. About six o'clock in the evening of Oct. 23, earthquake shocks were felt in Tototlan, Manzanillo, Colima, Tonila, Zapotlan, Sayula, Zacupua, Morelia, and Guadalajara, as well as in the city of Mexico, where the shock was light. The oscillatory movement was from northwest to southeast, with an average duration of twenty seconds.

MICHIGAN, a Western State, admitted to the Union in 1837; area, 58,915 square miles; population, according to the last State census (1884), 1,855,146; capital, Lansing.

Government.—The following were the State officers during the year: Governor, Cyrus G. Luce, Republican; Lieutenant-Governor, James H. Macdonald, who was killed in a railroad accident on Jan. 19; Secretary of State, Gilbert R. Osmun; Treasurer, George L. Maltz; Auditor-General, Henry H. Aplin; Attorney-General, Stephen V. R. Trowbridge; Superintendent of Public Instruction, Joseph Estabrook; Commissioner of Railroads, John T. Rich; Commissioner of Insurance, Henry S. Raymond; Labor Commissioner, Alfred H. Heath; Commissioner of Mineral Statistics, Charles D. Lawton; Commissioner of the State Land Office, Roscoe D. Dix; Chief Justice of the Supreme Court, Thomas R. Sherwood; Associate Justices, James V. Campbell, John W. Champlin, Allen B. Morse, and Charles D. Long.

Finances.—For the fiscal year ending June 30, 1888, the Treasurer makes the following report: Total balance in the Treasury, June 30, 1887, \$874,788.53; total receipts during the year, \$3,183,088.11; total disbursements, \$2,869,308.94; balance at the close of the year, \$1,188,567.70. For the general fund the statement is as follows: Balance on June 30, 1887, \$622,804.22; receipts for the year, \$2,758,212.14; disbursements, \$2,477,158.53; balance on June 30, 1888, \$903,857.83. The general-fund receipts included \$1,876,997.66, received of county treasurers from the State tax levy. Among the disbursements were \$224,603.37 for special appropriations to State charitable institutions, \$339,420.31 for colleges and schools, \$234,787.27 for prisons and reformatories, and \$526,746.74 for expense of the State government. The specific tax fund showed receipts of \$846,294.90 during the year from taxes upon railroad, insurance, telegraph, telephone, mining, and other companies. Nearly all of this sum was distributed to the educational funds. The amount of taxable property assessed in the

State for 1888 was as follows: Real property, \$710,633,545; personal property, \$139,287,518; railroad property, \$715,655; total, \$850,636,718. The State taxation was 15.4 cents on \$100.

On June 30, 1888, the bonded debt of the State was \$239,992.83, of which \$229,000, bearing 7 per cent. interest, becomes due in 1890. The sinking fund, which contained \$241,993 on the same date, will more than meet this debt at maturity. There is also a trust-fund debt, amounting to \$5,178,518.70, on which the State agrees to pay interest permanently for the benefit of educational institutions.

Legislative Session.—The biennial session of the Legislature began on Jan. 2 and ended on July 3. The choice of a successor to United States Senator Thomas W. Palmer fell upon James McMillan, who was nominated by the Republicans. The vote in the Legislature on Jan. 15 was: Senate, McMillan 22, Melbourne H. Ford (Democrat) 7; House, McMillan 68, Ford 27. The most important legislation of the session provides for a secret ballot at all elections, after the model of the Australian system. All ballots are to be prepared and furnished by the Secretary of State upon application made to him by the State central committee of any party or by county or other local party committees, and upon payment to him of the actual cost of the ballots and 10 per cent. additional. All ballots shall be of the same size, and there shall be nothing on the outside to distinguish one from another. Candidates for all the offices shall be voted for upon a single ballot. At each polling place there shall be built across the room a railing four feet high, in which there shall be one gate for entrance and one for exit. The ballot-box shall be inside the railing, guarded by an inspector. There shall also be within the railing one booth or temporary room for each 100 persons entitled to vote at the polling place, and one additional for any fraction of 100 greater than one fourth. The walls of each booth or room shall be six feet high, and they shall be so constructed that when a voter enters the gate in the railing, and passes into the booth or room on his way to the ballot-box, he shall be concealed while in the booth or room from persons outside the railing, and also from the inspector of elections at the ballot-box. There shall be hung up or placed in each booth or room the ballots of each of the political parties, and such "stickers" for independent or other candidates as shall be furnished to the election officers by such candidates. The voter shall select the party ballot which he wishes to vote, change it as he sees fit by the use of stickers or otherwise, and then fold it so that no names shall be visible. He shall then pass out of the booth or room and deliver his vote to the election inspector, who, without unfolding it, shall place a rubber band around it and deposit it in the ballot-box. Persons shall be admitted within the railing one by one, and there shall be no more inside at one time than there are booths or rooms. Townships having fewer than 100 voters are not compelled to erect the railing and booths above described. Polls shall be open from nine in the forenoon till five in the afternoon.

The railroad law was amended so as to reduce the maximum passenger fare chargeable for dis-

tances not exceeding 5 miles from 4 to 3 cents a mile. For distances over 5 miles the fare for roads on which the gross earnings of passenger trains in the year preceding should exceed \$3,000 a mile was fixed at 2 cents a mile; for roads having passenger earnings between \$2,000 and \$3,000 a mile the rate was fixed at 2½ cents; and for roads having less than \$2,000 a mile of passenger earnings the rate was fixed at 3 cents. The former rate was 3 cents in all cases. Higher rates are allowed in the upper peninsula. Railroad companies shall have for sale at every station 1,000-mile tickets, for which \$20 shall be charged in the lower and \$25 in the upper peninsula. These tickets may be used by any member of the purchaser's family.

A carefully prepared local-option law was passed, permitting elections on the license question in each county not oftener than two years on petition of one fourth of the electors of the county. Licenses for the manufacture and sale of liquors were increased beyond the high-license limit fixed in 1887 to the following figures: Manufacture and wholesale of intoxicating liquors, \$1,000; manufacture and wholesale of malt and fermented liquors, \$65; wholesale of intoxicating liquors, \$500; wholesale of malt and fermented liquors, \$500; retail of liquors of all kinds, \$500.

A State court of mediation and arbitration for the settlement of disputes between employer and employé was established, the three members of which shall be appointed by the Governor. "Trusts" were declared unlawful. Provision was made to submit to the people in November, 1890, the question whether a convention to revise the Constitution should be called to meet in December, 1891. The appropriations include \$45,000 for additional buildings at the Northern Michigan Asylum; \$70,000 for rebuilding and furnishing the center and north wings of the main building at the Reform School; \$20,700 for land and buildings for another asylum for insane criminals. Other acts of the session were as follow:

Allowing each school district to vote annually whether it shall have free text-books.

Changing the day for the meeting of presidential electors from the first Wednesday of December to the second Monday of January.

To punish willful and malicious injuries to mines and appliances connected therewith or used therein, which affect or protect the safety of miners.

To punish willful and malicious burning or setting fire to mines, materials in mines, and mine buildings.

To allow any railroad company to sell and convey its property and franchise to any other railroad company.

To punish the fraudulent removal, concealment, disposal, or embezzlement of property leased or under contract of purchase; also of personal property under chattel mortgage.

Providing for the discharge of liens already created by levy of execution upon real estate within five years from the date of this act, unless the estate shall be sooner sold thereon, and of future liens within five years from date of levy, unless the estate is sooner sold thereon.

To authorize the incorporation of companies for the purchase and improvement of grounds to be used for summer-houses, for camp meetings, for meetings of assemblies or associations and societies for intellectual and scientific culture and for the promotion of religion and morality.

Assenting to the act of Congress establishing agricultural experiment stations in the various States.

Making appropriations for the support of a State weather service, and providing for the levy of a State tax of \$4,175 in 1889 and in 1890 to pay such appropriations.

To punish the selling, giving, or furnishing tobacco in any form to minors under seventeen years, unless on written order of the parent or guardian.

To punish any person who sends, takes, or carries, or who attempts to do so, any dynamite, nitro-glycerine, or other explosive substances on any passenger boat or vehicle used wholly or partly for carrying passengers.

Punishing persons over sixteen years of age who entice males under fourteen years of age into secret places for immoral practices.

Providing a new law for the protection of fish.

To authorize any corporation organized under the law of the State to sell its property, franchise, and rights to any other company organized for the same purpose.

Increasing the bounty on wolves from \$8 to \$10, and on wolves' whelps from \$4 to \$6.

Regulating the kind of nets and seines to be used in catching fish in the State.

Authorizing the formation of corporations for acquiring, holding, leasing, and selling real estate, and for the erection of buildings thereon.

Prohibiting the display of pictures or representations on any fence, building, etc., or in any street or public place, showing the human form in an attitude or dress that would be indecent in case of a living person, if such person so appeared in any public street, square, or highway.

Increasing the bounty on English sparrows from one to three cents.

Providing for the organization of corporate Congregational churches.

Amending the procedure in enforcing mechanics' liens.

To provide for the incorporation of companies for clearing out and improving rivers and streams in the State, for the purpose of driving, sorting, holding, and delivering logs thereon.

Establishing a soldiers' relief commission for each county, and empowering it to furnish relief to needy Union soldiers and sailors outside of the State Soldiers' Home, and to indigent wives, widows, and minor children of such.

To provide for the formation of corporations to purchase and hold lands for the purpose of ditching, fencing, and reclaiming and otherwise improving them, and to use, cultivate, and sell such lands and their products, including live stock.

To define and punish the offense of embezzlement by general and special administrators, executors, and guardians.

To prevent fraud in the manufacture and sale of vinegar.

Providing that, in the discretion of the court, criminals may be sentenced to the State penal institution for an indefinite period, subject to the control of the prison board, provided the prisoner shall not be kept in confinement longer than the maximum period nor shorter than the minimum period allowed by law for punishment of the crime, and permitting the parole of prisoners by the board.

Providing that no child under twelve years shall be employed in any factory or manufacturing or mercantile establishment; that no male child under fourteen years and no female child under fifteen years shall be employed in such places more than fifty-four hours in any week; that hoisting-shafts and well-holes in buildings shall be properly guarded, and that the air shall be healthful for the employes, and machinery properly protected.

Incorporating co-operative associations to insure farm stock.

Providing a new game law.

Providing for the incorporation of mutual provi-

dent associations of commercial travelers, managers, salesmen, secretaries, cashiers, tellers, book-keepers, stenographers, correspondents, type-writers, and others engaged in clerical work.

Consolidating the cities of Saginaw and East Saginaw.

Incorporating the cities of Ironwood, Bessemer, Gladstone, Au Sable, Fort Gratiot, Cheboygan, and Mount Pleasant.

Providing a special registration law for the city of Detroit.

Lumber.—In the manufacture of lumber, Michigan still ranks first in the United States in the volume of product.

The product for 1888 was:

Lumber, feet.....	4,197,741,224
Shingles.....	2,560,930,250
Lumber on hand, feet.....	1,447,503,997
Shingles on hand.....	864,307,250

Salt.—The amount of capital invested in salt plants in Michigan is about \$4,700,000, employing 3,600 men. There were worked in 1889, 254 salt wells, 228 of which were from sand rock and 26 from rock salt. The sand-rock wells yielded an average of 11,358 barrels per well; the rock-salt wells an average of 67,118 barrels per well. The total production in 1888 was 3,866,228 barrels; in 1889 it was 3,846,979 barrels. These figures show only the amount inspected by the State inspector; the amount actually manufactured during the inspection year 1889 was 4,334,889 barrels, adding the salt in bins, an increase over last year of 91,623 barrels.

Banks.—When the general banking law went into effect Jan. 7, 1889, there were 80 banks incorporated and doing business under the State law of 1858, as amended in 1873. From Jan. 7 to Dec. 31, the Bank Commissioner incorporated 13 new banks, and 1 loan, trust, and security company. There were in the State on the latter date 93 State banks, 3 loan, trust, and security companies, and 113 national banks. The 90 State banks, which made returns to the State bank commissioner, reported \$7,254,559.10 as the amount of capital stock paid in, while the capital stock of the 113 national banks was \$15,674,600. The commercial and savings deposits in State banks amounted to \$35,051,783.83, and the commercial deposits in the national banks to \$35,217,989.08. Fifty-nine of the State banks are either savings banks or have savings departments, and these report savings deposits to the value of \$23,669,030.20, credited to 97,803 depositors.

Political.—A State election was held on April 1 to choose a justice of the Supreme Court and two regents of the State University. The Republicans nominated Claudius B. Grant for the judicial office, and Charles G. Draper and William J. Cocker for regents. The Democrats renominated Chief-Justice Sherwood and selected John S. Lawrence and Worthy L. Churchill for regents. The Republican candidates were successful. For Justice, Grant received 156,456 votes; Sherwood, 122,955; J. R. Lang, Prohibitionist, 16,380; and L. McHugh, Labor, 2,681. For regent, Draper received 154,977 votes; Cocker, 153,773; Lawrence, 123,855; Churchill, 123,793; Russell M. Kellogg, Prohibitionist, 16,524; John Russell, Prohibitionist, 16,465; Giles C. McAllister, Labor, 2,675; Elwyn P. Green, Labor, 2,602. Three amendments to the State

Constitution were voted upon and adopted. The amendment increasing the annual salary of the Governor from \$1,000 to \$4,000 and of circuit judges to \$2,500 received 111,854 affirmative and 72,494 negative votes; that enabling corporations to continue their existence without reorganizing at the end of fifty years obtained 35,269 affirmative and 28,950 negative votes; the third, in relation to circuit courts, received 49,478 affirmative and 19,834 negative votes.

MINNESOTA, a Western State, admitted to the Union in 1858; area, 83,365 square miles; population, according to the last decennial census (1880), 780,773; capital, St. Paul.

Government.—The following were the State officers during the year: Governor, William R. Merriam, Republican; Lieutenant-Governor, Albert E. Rice; Secretary of State, Hans Mattson; Auditor, W. W. Braden; Treasurer, Joseph Bobleter; Attorney-General, Moses E. Clapp; Superintendent of Public Instruction, D. L. Kiehle; Insurance Commissioner, C. P. Bailey; Railroad and Warehouse Commissioners, John P. Williams, John L. Gibbs, George L. Becker; Chief Justice of the Supreme Court, James Gilfillan; Associate Justices, Loren W. Collins, William Mitchell, Daniel A. Dickenson, and Charles E. Vanderburgh.

Finances.—The permanent debt of the State at the beginning of the year was \$3,965,000, represented by 4½-per-cent. bonds payable in 1891. To meet the temporary needs of the treasury, the Legislature this year authorized a further issue of bonds to the value of \$400,000, bearing 4 per cent interest and payable in eight years, of which \$250,000 should be designated as Minnesota revenue bonds, and \$150,000 as Minnesota building bonds. The sinking fund at the beginning of the year contained bonds and securities amounting to \$1,994,209, reducing the actual debt of the State by that sum. The State tax levy for 1889 was 1 mill for educational purposes, 1.7 mill for revenue purposes, and .1 mill for the Soldiers' Relief fund. For 1890 and 1891 the Legislature increased the rate for revenue purposes to 1.9 mill and added a tax of .1 mill, to be levied for eight years, to provide a fund for the payment of the \$400,000 bonds issued this year. These, together with the educational and soldiers' relief taxes, will increase the total rate for those years to 3.1 mills.

Legislative Session.—The twenty-sixth session of the State Legislature began on Jan. 8, and adjourned on April 23. On Jan. 23 William D. Washburn, Republican, was chosen to be United States Senator to succeed Senator Dwight M. Sabin, the vote being: Washburn 107, E. W. Durant 20, C. M. Start 9, all others 5.

The most important act of the session established in cities of 10,000 inhabitants or over a secret system of voting similar to the Australian system. The following are the chief features of the act. The State Auditor is required to furnish to such cities, at State expense, printed white ballots containing the names of all candidates to be voted for throughout the State, and all constitutional amendments; the county auditors, at county expense, shall furnish printed blue ballots containing the names of candidates voted for throughout the county, except those above provided for by the State Auditor; and

the city clerks shall furnish red ballots containing the names of candidates voted for throughout the city, except those above provided for. The candidates chosen at primary conventions must be reported to the respective officers charged with printing the ballots within a fixed time before the election, and provision is made for printing the names of independent candidates on petition of 1 per cent. of the entire number of persons voting at the preceding election in the district for which the nomination is made, provided that the number of signatures required in case of a State officer shall not exceed 2,000. Each candidate on the white ticket shall pay \$50, on the blue ticket \$10, and on the red ticket \$5, to the respective officers printing the ballots. The form and size of each ballot is prescribed, and the voter shall indicate his choice by placing a cross opposite the name of each candidate, or he may write in the name of a candidate of his own and place a cross opposite that. If a voter wishes to vote for all the candidates of a certain party, he may do so by placing a cross opposite one of the names near the head of the ticket, and he shall then be considered to have voted for all. The ballots shall be bound in blocks, and the ballot clerk, who distributes them to the voters shall write his initials on the back of each ballot. The voter shall retire to a booth or compartment and mark his ballot secretly and fold it so that the initials of the clerk shall appear and nothing else. Each booth or compartment shall be provided with a door or curtain, and there shall be at each polling place as many as two such booths or compartments for every one hundred registered voters in the election district. The polling place shall be so arranged that the ballot-boxes and the booths or compartments shall be railed off or otherwise separated from the remaining space, and no one shall be allowed within the railing except the proper election officers, policemen, one representative of each political party, who may challenge voters, and persons in process of voting, who shall be admitted within the railing one at a time and so that not more than three persons above the number of compartments shall be within the railing at one time. The voter shall hand his folded ballot to the election judge before leaving the inclosure, and the latter shall deposit it in the ballot-box if properly marked with the initials of the clerk. Red, white, and blue ballot-boxes shall be provided, into which the respective colored ballots shall be deposited, but a vote deposited in the wrong box shall not be void. Boards of registration are established in such cities. Every ward in each city shall constitute an election district, but no such district shall contain more than four hundred voters. Polls shall be opened from 6 A. M. to 5 P. M. A penalty is imposed upon the voter for disclosing his choice, upon any one interfering with him while preparing his ballot, and for other violations of the act.

A new law regarding the execution of criminals prohibits the details of any such execution being published in any newspaper. No persons shall be admitted as witnesses to an execution except a clergyman for the prisoner, a physician, not more than three persons selected by the prisoner, and not more than six persons selected by

the sheriff, provided that no newspaper reporter or representative shall be admitted. All executions shall take place before sunrise, and in some inclosed space.

The act of 1887 abolishing the contract system at the State Prison and establishing the State-account system, therefor, which was not enforced from lack of appropriations, was repealed, and a new law was enacted which gives the prison manager the option of employing the prisoners under one or more of the three systems known as the "State-account," "contract," and "piece-price" systems, provided that the prisoners shall be employed on the State-account system as much as possible.

A person who has served two terms of not less than three years each is declared an habitual criminal, and on a third conviction shall be sentenced for a term of twenty-one years.

Other acts of the session were as follow :

Moderating the provisions of the anti-alien law of 1887, so that aliens may hold a limited amount of city property, and there shall be no forfeiture in any case to the State, unless proceedings are begun therefor within three years after the alien ownership has begun, and providing also that the title of no citizen of the United States shall fail by reason of prior alien ownership.

Providing that the question shall be submitted to the people at the next general election whether the act of 1887 relating to taxation of railroads shall be repealed.

Providing a new and elaborate mechanics' lien law.

Redistricting the State for members of the Legislature.

Appropriating \$100,000 to be used in purchasing seed grain for needy farmers whose crops were destroyed by frost, blight, or hail during 1888.

Providing a penalty in certain cases for the manufacture and sale of adulterated baking-powders, vinegar, lard, or liquors.

To punish the counterfeiting of labels, trade-marks, and advertisements adopted by associations and unions of workmen.

To compel employers of women and girls to furnish suitable seats for the use of such employes.

To prevent fraud in the sale of grain, seed, and other cereals.

To prohibit prize fighting and sparring matches, and betting upon the same.

Providing a penalty for drunkenness.

Prohibiting the gift or sale of cigarettes, cigars, or tobacco in any form to minors under sixteen years.

To prevent the improper use or wearing of insignia of the Grand Army and the Loyal Legion, also, of secret orders and societies.

Prohibiting the use of firearms by minors under fourteen years, unless such persons are accompanied by parent or guardian.

Prohibiting the maintenance of opium "joints."

Regulating the sale and lease of mineral and other lands of the State.

Legalizing deeds that are recorded without the signature of any subscribing witness, or acknowledged before a person not legally authorized to take acknowledgments.

Amending the law relative to assignments of insolvent debtors.

Limiting to twenty years after a foreclosure, the right of any person interested to attack the validity of such foreclosure proceedings, or of a sheriff's sale under such foreclosure.

Legalizing mortgages recorded with only one witness and without seal or seals, and foreclosure sales under such mortgages, if otherwise in proper form.

Providing for the mortgaging of lands by executors and administrators.

Establishing a new probate code.

Appropriating \$2,000 to the Minnesota State Forestry Association for the encouragement of tree planting.

Accepting the act of Congress establishing Agricultural Experiment Stations in the various States.

Making May 30, Memorial Day, a legal holiday.

Adding \$10,000 annually to the regular appropriation for the militia.

Exempting from garnishment the wages of workmen to the amount of \$25.

Repealing the act of 1887 which abolished garnishment of wages of workmen earned by the labor of their own hands.

Enacting a new game law.

Providing that the insurance commissioner shall prepare a form of fire-insurance policy similar to the New York Standard policy, and that the same shall be adopted by all fire-insurance companies in the State and shall be known as the Minnesota standard policy.

Revising the act of 1887 to prevent the sale or manufacture of unhealthy or adulterated dairy products.

To provide for the better protection of life and property by establishing a board of inspectors of steam vessels and steam boilers, and to provide for licensing engineers of steam engines and masters and pilots of steamboats.

Appropriating \$7,500 for the maintenance of farmers' institutes.

Providing for the preparation and publication of a history of the State troops in the civil war and in the Indian war of 1862, and appropriating \$12,000 therefor.

Providing for the erection of monuments to commemorate the battles at New Ulm and at Camp Release in 1862, at the time of the Sioux invasion of the State.

Incorporating the cities of West St. Paul, Barnesville, Sauk Center, Tower, and Little Falls.

Prohibiting the sale of fresh meat in the State for human food unless within twenty-four hours before the animal producing the same was slaughtered, it had been inspected and found healthy by the local inspectors. [This act was, on Aug. 12, declared unconstitutional by the district court at Duluth, on the ground that it was a regulation of interstate commerce.]

The total appropriations of the Legislature for the two years 1890-91 amounted to \$1,941,642. They include \$815,500 for maintenance and repairs of State charitable and penal institutions, \$295,750 for improvements and additions to the same, \$100,000 to the State University, \$155,000 for Legislative expenses, and \$41,000 to aid in constructing numerous roads and bridges.

Education.—The total enrollment in the graded schools for the year ending July 31, 1889, was 82,227, and the average attendance 57,457. There are 119 independent and special school districts in the State under the control of 19 special superintendents and 100 high-school principals, who also officiate in the capacity of superintendents. The salaries paid the special superintendents aggregate \$30,405, and those paid the principals who act as superintendents as well as teachers in the high schools amounted to \$90,902.50. Evening schools were maintained at St. Paul and Minneapolis, and at five other cities in the State. The total enrollment in these schools was 5,443, and the average attendance 2,080.

Soldiers' Aid.—From the opening of the State Home for Soldiers in November, 1887, to Aug. 1, 1889, the total number of admissions was 207, and there remained in the home at the latter

date 146. The total expenditures for the support of the institution to Aug. 1 were \$39,986.98. Relief is also given by the State to soldiers outside of the Home. The number receiving regular relief on Aug. 1 was 489. The following is a statement of the Relief fund: Expended for relief of soldiers during year, \$34,682.79; transferred to home support fund, \$5,000; total expenditure, \$39,682.79; Soldiers' Relief in treasury Aug. 1, 1889, \$42,254.94.

Agriculture.—The following figures showing the acreage and yield of farm crops for 1889 were reported by the State Commissioner of Statistics: Wheat, 2,921,437 acres, 45,498,205 bushels; corn, 688,622 acres, 22,115,769 bushels; oats, 1,394,555 acres, 48,253,799 bushels; barley, 332,017 acres, 9,105,209 bushels; flax seed, 157,540 acres, 1,647,622 bushels.

Railroads.—For the year ending June 30, 1889, the total railroad construction was 286.78 miles, making the mileage in the State on that date 5,303.07. The capital stock, bonds, and debt of all the railroads in the State, as reported by the companies June 30, 1889, was \$231,973,866. The amount so reported June 30, 1888, was \$206,418,044. The gross earnings were \$25,225,578, a decrease from the previous year of \$520,983. The freight earnings were \$16,837,833, a decrease of \$1,375,987. The passenger earnings aggregated \$5,987,306, the decrease being \$54,705. The earnings for baggage, mail, express, etc., were \$2,365,439, an increase of \$909,711.

The total operating expenses were \$14,985,972, a decrease of \$340,073. The total net income of the lines in the State was \$10,239,606, a decrease of \$180,910.

Lumber.—Statistics covering Minnesota entirely, the Mississippi valley as far south as St. Louis, Wisconsin as far east as the Wisconsin valley, and all the territory tributary to the Soo road, show that for 1889 there was a net decrease from 1888 in the production of lumber, amounting to 756,404,777 feet, an increase in the number of shingles cut of 196,326,900, and a decrease in the number of lath made amounting to 23,048,239. The production of lumber in this region for 1889 was 3,467,436,593 feet; shingles, 1,581,576,550 pieces; and lath, 687,260,671 pieces.

The largest decrease in the lumber cut was in the region along the Mississippi valley north of Minneapolis, in which it has been in normal years as high as 180,000,000 feet, but which this year amounted to only 48,870,684 feet.

MISSISSIPPI, a Southern State, admitted to the Union in 1817: area, 46,810 square miles; population, according to the last decennial census (1880), 1,131,597; capital, Jackson.

Government.—The following were the State officers during the year: Governor, Robert Lowry, Democrat; Lieutenant-Governor, G. D. Shands; Secretary of State, George M. Govan; Auditor, W. W. Stone; Treasurer, W. L. Hemingway; Attorney-General, T. M. Miller; Superintendent of Public Instruction, J. R. Preston; Railroad Commissioners, J. F. Sessions, J. C. Kyle, and Walter McLaurin; Chief Justice of the Supreme Court, James M. Arnold, who resigned on Oct. 1 and was succeeded by Thomas H. Woods by appointment of the Governor; Associate Justices, J. A. P. Campbell and Timothy E. Cooper.

Finances.—For the two years ending Dec. 31, 1889, the treasury shows a large excess of receipts over expenditures. The regular receipts for 1888 were \$1,033,807.35, and for 1889, \$1,151,055.10, a total of \$2,184,862.45 for the two years. The disbursements for 1888 were \$1,010,628.89, and for 1889, \$870,675.13, a total of \$1,881,304.02, being less than the receipts by \$303,558.43. The increase of receipts for 1889 over those of 1888 was produced by an increase of a half-mill in the tax levy in the former year, and also by the increase of \$25,000,000 in valuation of property in 1889. The balance in the State treasury on Dec. 31 of this year, in all funds, was \$555,450.02. The State tax rate for 1889 was 3.5 mills for general purposes and .5 mill for the payment of interest on State bonds.

Education.—The public schools have shown increased prosperity, and the introduction of the free-school system in 1886 has proved an important step in the interest of education. During the school year 1887-'88 there were 51,213 more children enrolled in the schools than in the preceding year. Within the last two years more than 800 county school-houses have been erected. Many of the cities and towns have erected costly buildings and maintain their free schools from eight to ten months in the year. Twelve towns in 1888-'89 expended \$184,000 in buildings.

The State University, at Oxford, has been reorganized, and the courses of instruction made more satisfactory. During the school year 1888-'89 the total number of students was 189. At the present session, under the reorganization, 232 students had been enrolled before the end of December. At the Agricultural and Mechanical College the average attendance during the last school year was 313.

The Industrial Institute and College at Columbus is devoted exclusively to the higher education of white women, and to their training in the industrial arts. More than 300 students were enrolled during the year. The Alcorn Agricultural and Mechanical College for colored youth, near Starkville, enrolled 216 students during the school year 1888-'89. In 1882 the number enrolled was only 113. The State Normal School is at Holly Springs, and during the school year ending in 1889 enrolled 171 students. This institution affords a two-year course, and is for the benefit of the colored race.

Charities.—The State Insane Asylum at Jackson at the close of the year 1888 contained 459 patients, and at the close of this year 441. At the East Mississippi Asylum there were 230 patients at the close of 1888, and 249 at the close of 1889. The Deaf and Dumb Institute has enrolled during the last two years 191 pupils, of whom 84 remained at the close of this year. The legislative appropriation for the two years was \$24,149.86, a sum inadequate for the needs of the institution. The State Institution for the Blind has successfully instructed a large number of pupils during the year.

Penitentiary.—By reason of the cancellation of the lease to the Gulf and Ship Island Railroad Company late in 1888, the State Board of Control found the entire number of State prisoners returned to its immediate management. Instead of effecting a new lease similar to the old one, the board undertook the experiment of letting

only a small number of prisoners at a time, and distributing them to different contractors. Before the last of March 318 of the 484 then on the Penitentiary register had been leased in this way to 13 different contractors, the State receiving \$9 a month for able-bodied men, in addition to board, clothing, and medical attendance. The remaining number were employed within the walls of the Penitentiary and on the farm. By the first of June the number leased had risen to 389, and only 177 remained within the Penitentiary. Before the end of the year the new method had fully demonstrated its superiority to the former system of leasing to a single contractor. The superior treatment received by the convicts was shown by the fact that the death-rate from the time the railroad company surrendered its lease was only about 3 per cent. of the whole number, compared with 16 per cent. of 1887 and 11 per cent. for 1888. The Board paid into the State treasury during the year about \$25,000 in profits, more than twice as much as the State has ever before received. The number of convicts has diminished from 747 early in 1887 to about 490 at the close of 1889. This decrease is due principally to the amendment passed by the last Legislature, giving the county jails custody of persons convicted of larceny of less than \$25.

Prohibition.—Under the local-option law about half of the counties in the State have prohibited the sale of liquor, the number being larger this year than ever. There is a State organization of the friends of prohibition, which has hitherto remained aloof from State or national politics. Its annual State convention met at Jackson on July 2, and adopted resolutions avowing it to be the object of the organization to secure ultimately a prohibitory law for the whole State.

Confederate Pensions.—The present annual appropriation of the Legislature for this purpose is \$21,000, which has hitherto yielded each pensioner about \$21. The increase of pensioners has this year reduced the individual share to about \$16.

Political.—A Democratic State Convention met at Jackson on July 16, and nominated the following ticket: For Governor, J. M. Stone; Lieutenant-Governor, M. M. Evans; Secretary of State, George M. Govan; Treasurer, J. J. Evans; Auditor, W. W. Stone; Attorney-General, T. Marshall Miller; Superintendent of Education, J. R. Preston. The platform contained the following:

We repudiate and decline to share in any feeling of sectional prejudice, and are gladdened by every indication of full and free sympathy between all parts of the Union, hail with delight a better knowledge each of the other, and the dawn of a hearty feeling of brotherhood, where hatred can find no exponent in party measures.

We recommend that the question of a convention to revise our present Constitution be made an issue before the people in the coming election.

The Republicans met in State convention at Jackson on Sept. 25, and voted to place a State ticket in the field. Gen. James R. Chalmers was selected as the leader. For Lieutenant-Governor, James D. Lynch was nominated; Secretary of State, W. E. Mollison; Treasurer, John S. Jones; Auditor, Edward Young; for Attor-

ney-General, W. D. Frazee; Superintendent of Education, W. A. Parsons, Jr. The platform urged Federal election laws to conduct registration and election in the States; argued for a protective tariff; denounced trusts and communism, and charged that they flourished under Democratic rule; condemned contract labor, and denounced the running off of labor agents who seek to take labor elsewhere; favored the Blair bill, and followed with a long arraignment of the State Administration.

Early in October Gen. Chalmers published a letter declining the nomination, for personal reasons, and a few weeks later the Republican State Committee withdrew the entire ticket. Its reasons for this course were presented in a series of resolutions, the purport of which is contained in the following:

We know that our votes would be stolen and our voters driven from the polls, but we hoped, in the larger towns and cities, at least, the semblance of free speech might still remain to us; but our candidates are not safely allowed to discuss or protest. We refer not only to such well-known slaughters as Kemper and Copiah, Clinton and Carrollton, Wahalak and Vicksburg, Yazoo City and Leflore, but the nameless killing by creek and bayou, on highway and by-way. These are the Democratic arguments which crush us. We can do no more.

At the election in November the Democratic ticket was elected without opposition, Stone receiving 84,929 votes for Governor, out of a total vote of 84,953. The Republicans elected none of the 40 members of the State Senate for 1890, and but 7 of the 120 members of the Lower House.

MISSOURI, a Western State, admitted to the Union in 1821; area, 69,415 square miles; population, according to the last decennial census (1880), 2,168,380; capital, Jefferson City.

Government.—The following were the State officers during the year: Governor, David R. Francis, Democrat; Lieutenant-Governor, Stephen H. Claycomb; Secretary of State, Alexander A. Lesueur; Auditor, James M. Seibert; Treasurer, Edward T. Noland; Attorney-General, John M. Wood; Register of Lands, Robert McCulloch; Superintendent of Public Schools, William E. Coleman; Railroad Commissioners, William G. Downing, John B. Breathitt, T. J. Hennessy; Chief Justice of the Supreme Court, Robert D. Ray; Associate Justices, Thomas A. Sherwood, Francis M. Black, Theodore Brace, and R. S. Barelay.

Finances.—On Jan. 1, 1887, the balance in the treasury credited to the various funds was \$573,170.41; the total receipts during 1887 were \$3,766,455.72, and during 1888, \$3,463,211.19; the disbursements in 1887 were \$3,870,644.21, and in 1888, \$3,346,694.04, leaving a balance, on Jan. 1, 1889, of \$585,499.07. In the general revenue fund the balance on Jan. 1, 1887, was \$347,700.21, the receipts for the biennial period were \$4,133,549.24, and the expenditures \$4,465,311.51, leaving a balance, on Jan. 1, 1889, of \$15,937.94. During the two years, \$1,002,000 was paid out of the sinking fund to retire maturing bonds, and there was in the fund on Jan. 1, 1889, \$330,025.78. There was paid out of the general fund for State charitable institutions, during the same period, \$731,427; for the State Penitentiary, \$167,758.46; and for costs in criminal cases and rewards, \$634,-

997.60. The total sum paid out for public schools and State educational institutions was \$1,788,834.81, of which \$1,161,555.31 were the proceeds of one third of the State revenue, which is devoted to school purposes, and \$366,104.94 were derived from interest on the State school fund of \$3,136,206.74.

The assessed valuation of property in the State for 1888, exclusive of railroad, bridge, and telegraph property, was \$738,421,083; and for 1889, \$750,131,139. The valuation of railroad, bridge, and telegraph property for 1888 was \$51,271,162.38. The State tax rate is 40 cents on each \$100, of which 20 cents is for general revenue and 20 cents for the State interest fund.

Legislative Session.—The thirty-fifth legislative session began on Jan. 2, and adjourned on May 24. A ballot-reform act, modeled on the Australian law and applicable to cities and towns of 5,000 inhabitants or over, was an important result of the session. Under this act, ballots are to be printed and delivered to the election officers at the expense of the county, except when the officers to be elected are exclusively city officers. In order that their names may appear upon the official ballots, candidates must file certificates of nomination with the Secretary of State, if they are to be voted for throughout the State or in a district larger than a single county, and in other cases with the clerk of the county court. When a candidate is chosen by a convention of delegates, his certificate shall be signed by the president and secretary of the convention; in all other cases, it shall be signed by at least one per cent. of the total number of voters who cast their ballots in the last preceding general election, provided that in no case shall the signatures be fewer than 50 or more than 1,000. The county clerk is required to publish twice before any election, in two newspapers of the county, a list of all the candidates so nominated, in the order in which they shall appear on the printed ballots. These ballots shall be provided by the clerk of the county court, each ballot to contain the names of all the candidates. The nominees of each party shall be grouped together, headed by the name of the party, and a blank space shall be left at the end of the list sufficiently large to allow writing in the names of another group of candidates. The ballots shall be delivered by the county clerk to the judges of election. At each polling place one booth or compartment shall be erected for every 100 electors who voted in the district at the last general election. A guard-rail shall be so erected that no one who is not an election officer or in the act of voting can approach within five feet of the ballot-box or the compartments. Two judges of election shall stand at the railing, and, before delivering a ballot to the elector, shall write their initials on the back within two inches of the top. The voter, having received his ballot, shall proceed to one of the booths, and there, screened from observation, shall prepare his ballot by crossing out the names of candidates for whom he does not wish to vote. He shall then fold his ballot so as to conceal his choice, and deliver it to the officer in charge of the ballot-box. No more than one person shall be allowed in any compartment at one time. No ballots can be taken from the polling place; they must be

voted or returned to the election officer. No ballot that does not contain the initials of the judges is valid. In St. Louis, Kansas City, and all places where a registration law prevails, the duties of the clerk of the county court shall be performed by the recorder of voters. Electioneering within any polling place, or within one hundred feet of any such place, is forbidden.

A board of mediation and arbitration was established for the purpose of settling disputes between employers and employes. It shall consist of the Commissioner of Labor Statistics, who in each case shall summon two employers and two employes engaged in a similar occupation to that in which the dispute exists, to form with him the board. The commissioner shall not call together such a board in any case where either party has discontinued labor, unless it is resumed before the board meets. Its decisions are not binding.

An amendment to the State Constitution was proposed, increasing the judges of the Supreme Court from five to seven, to be submitted to the people in November, 1890.

The sum of \$1,000,000 was appropriated to the sinking fund, to be used in the purchase and redemption of State bonds in 1889 and 1890. Other current appropriations for the two years were: State University, \$67,000; Fulton Lunatic Asylum, \$84,200; St. Joseph Asylum, \$87,500; Nevada Asylum, \$93,100; St. Louis Asylum, \$70,000; Institution for Deaf and Dumb, \$94,500 for support and \$93,000 for improvements; School for Blind, \$51,000; Penitentiary, \$175,000, in addition to the earnings of the prisoners to the extent of \$375,000; Reform School, \$31,000; Industrial School, \$20,650; normal schools, \$96,500; School of Music, \$20,000; costs in criminal cases, \$500,000. The following acts were also passed:

Prohibiting railroads from making higher charges for transporting a carload of mixed merchandise of different classes for the same owner than it charges for a carload of the highest class of merchandise among such mixed merchandise, and prohibiting a higher charge for less than a carload than is charged for a full carload of the same merchandise or of similar mixed merchandise.

Forbidding the importation of any person, persons, or associations of persons, for the purpose of discharging the duties devolving upon the police officers, sheriffs, or constables in the protection and preservation of private property.

Forbidding trusts, pools, or combinations.

Prohibiting dealings in margins or options with agricultural products or other commodities or bonds and stocks.

Making it unlawful for any person or corporation or others to use any barrel, lard tierce, preserve or butter tub that has once been used, for the purpose of packing or storing any article of human food therein, unless such receptacle has been thoroughly cleansed.

Providing for the collation and codification of the general statutes of the State, to be known as the "Revised Statute of 1889."

Revising the laws relating to practice in civil cases.

Revising the public-school law.

Revising the law relating to the State University.

Amending the law relative to the acknowledgment of deeds and other instruments.

Defining express companies and imposing an annual tax of 2 per cent. upon their gross annual receipts.

Requiring railroad companies to provide equal and proper facilities for all express companies wishing to

transact their business on the lines of such railroad companies.

Changing the northern boundary line of St. Clair County.

Providing for an inspector of milk in cities of over 300,000 inhabitants.

Providing a penalty for the adulteration of candy.

Prohibiting dramshop keepers from keeping in their shops musical instruments, billiard or gaming tables, bowling-alleys, cards, or other device for amusement.

Permitting the courts to appoint corporations for the protection of abandoned, ill-treated, or friendless children to be guardians of the persons of such children.

Creating a Bureau of Geology and Mines.

Making employes and laborers preferred creditors in certain cases.

Providing a penalty for cutting, carrying away, and destroying timber on saline, seminary, State, school, and other lands.

Providing for the formation of contiguous bodies of river lands into levee districts.

Providing a salary of \$1,000 per annum for the Lieutenant-Governor.

Appointing the first Friday after the first Tuesday of April to be observed as Arbor Day.

Assenting to the act of Congress providing for the establishment of agricultural experiment stations.

Education.—For the school year 1887-'88 the following statistics are presented: Number of children of school age—white 804,978, colored 47,452, total 852,430; number enrolled in the public schools—white 577,335, colored 33,215, total 610,550; average daily attendance, 377,502; number of teachers employed, 13,677; number of schools taught—white 9,272, colored 547, total 9,819; number of school districts, 9,301; total value of school property, \$9,803,786; total expenditures for schools, including maintenance, repairs, and new buildings, \$4,765,246.09.

The State Normal School at Kirksville enrolled during the year 490 pupils; that at Warrensburg enrolled 649; and that at Cape Girardeau, 279. These schools are liberally supported by the State. The Lincoln Institute at Jefferson City supports a normal department, which was attended by 36 pupils during the year.

At the State University at Columbia 573 students were enrolled during the year. For the biennial period ending Jan. 1, 1889, the current expenses were \$147,916.77.

Charities.—At the State Lunatic Asylum at Fulton there were 552 patients on Jan. 1, 1887. During the two years following 339 patients were admitted, making a total of 891—504 males and 387 females. There were discharged during the period 351, leaving 540 remaining on Jan. 1, 1889. The total expenditures for maintenance were \$217,726.56 for the two years, of which \$70,000 were paid by the State and \$130,000 by the counties. The State Lunatic Asylum at St. Joseph contained 397 inmates on Jan. 1, 1887; there were admitted during the two years succeeding 377 patients, a total of 774—427 males and 347 females. The number discharged during this period was 245, and there remained 529 on Jan. 1, 1889. The cost of maintaining the asylum during the period was \$189,445.22, of which \$70,000 were paid by the State. The State Lunatic Asylum at Nevada was opened on Oct. 15, 1887. It is on a tract one half mile north of the city of Nevada, consisting of 520 acres, given to the asylum by that city. Up to Jan. 1, 1889,

there had been received 281 patients, 91 had been discharged, and there remained on that date 190. The report of the treasurer shows disbursements amounting to \$57,234.65.

At the State Institution for the Deaf and Dumb at Fulton there were 259 pupils in attendance during 1887, and 282 during 1888. On Jan. 1, 1889, there were 199 remaining—120 males and 79 females. The total current expenditures for the two years were \$74,541.39, of which the State pays \$70,000.

State Prison.—At the State Prison at Jefferson City there were 1,329 convicts in June of this year, of whom 53 were females. This is an increase of about 300 from four years ago, and is the largest number confined in any prison in the United States. The total cost of maintaining the prison for 1887 and 1888 was \$477,273.90, of which sum \$309,536.73 was paid from the labor of convicts.

High License and Local Option.—The effect of the high-license law in diminishing the number of saloons and the volume of saloon business has been scarcely perceptible, as the following comparison will show: In 1882, 3,601 dramshops and other saloons were licensed, from which the total sum of \$699,395.56 was received for State, county, city, and town licenses. In 1888 the number licensed reached 3,489, and the total license receipts were \$1,842,044.15. Under the local-option law, prohibition prevails in 65 of the 114 counties of the State.

The Bald-Knobbers.—At the beginning of the year, the day set for the execution of the condemned Bald-Knobbers, William Walker and John Matthews, had been again postponed from the preceding Dec. 28 to Feb. 15. When that date arrived, inasmuch as the Supreme Court had not yet passed upon the case of David Walker, the Bald-Knobber chief, the Governor granted a reprieve to the others until April 19. The Supreme Court later decided adversely in the case of David Walker, and fixed the time of his execution for May 10. About April 12 the attorneys for William Walker and John Matthews made a strong appeal for commutation of the sentences of their clients, and when that was denied asked for a respite until May 10, the date of David Walker's execution, which was granted. For several weeks prior to the latter date strong pressure was brought upon the Governor to commute the sentence of the condemned men, all the newspapers and nearly all the leading citizens of southwestern Missouri uniting in urging this course. The Governor, however, remained firm, and on the day fixed the sentences were carried out at the jail at Ozark according to law, after a delay of over two years from the execution of the crimes.

Wheat-Growers' Convention.—On Oct. 27 a convention of the wheat growers and farmers of the Mississippi valley met at St. Louis. Norman J. Coleman, formerly United States Secretary of Agriculture, was selected to preside. Sessions were held for three days, near the close of which resolutions were adopted, of which the following are the most important:

That we now proceed to a permanent organization of Interstate Wheat-Growers' Association by an election of an executive board, to be composed of two members from each State and Territory included in the

Mississippi valley, whose term of office shall be two years.

That the executive board, together with the executive boards or heads of departments of the Farmers' Federation, shall have power to advise relative to price that all farm products should be sold for in the markets of commercial centers in the Mississippi valley.

That we recommend our brother farmers, when and where practicable, to build joint-stock elevators for their own use and benefit; and, further, we believe that another cause of disaster to the wheat-growing industries of America lies in what is known as bearing and bulling the market, and therefore we respectfully request our Congress to pass an interstate law making it a felony for any man or company of men to sell or offer for sale any produce which he or they do not own at the time of sale or offering for sale.

Political.—The death of Congressman James N. Burnes, at Washington, on June 23, rendered necessary a special election in the Fourth Congressional District to choose his successor in the Fiftieth Congress and also in the Fifty-First Congress to which he had been re-elected. The Governor called the election for Feb. 19. The Democrats nominated Charles F. Booher for the short term and Robert R. C. Wilson for the long term, and they were elected.

On April 2 local elections were held in various towns and cities. In St. Louis the Democratic candidate for Mayor, Edward A. Noonan, was elected by about 1,600 majority. The Republicans elected the remainder of the ticket, except the Auditor, Register, and President of the Board of Assessors. The Municipal Assembly was Republican.

St. Louis, the chief city of Missouri and the commercial metropolis of the central Mississippi valley, on the right bank of the Mississippi river, twenty miles below the entrance of the Missouri. The population in 1880 was 350,518, in 1886 it was 423,029, and in 1889 it was estimated at 500,000. In 1875 the city was separated from the old county of St. Louis, and under the present charter it stands in the same relation to the State as a county. Under the same act the city limits were extended so that the city covers an area of nearly 40,000 acres, stretching for 17 miles along the river. The former city of Carondelet is now incorporated with St. Louis. The assessed valuation of real estate has grown from \$53,205,820 in 1864 to \$195,578,249 in 1888, while the rate of taxation has fallen from 2-60 to 2-30 in the same period.

Among the 2,602 buildings erected in 1888 are the "Singer" building, 8 stories in height; Bank of Commerce building, 7 stories; Commercial, 8 stories; the Fagin building, a unique structure of rough and polished granite and glass, 10 stories high; the Odd Fellows' building, adjoining it, which cost \$1,000,000, and is very handsome; the Laclede building, etc. All these new commercial buildings are strictly fireproof, the corridors in some being of polished granite throughout. Thirty-four railways enter St. Louis, most of them trunk lines, and nearly 400 trains arrive and depart daily at the Union Depot. The great Eads steel bridge across the Mississippi has proved insufficient for the city's commerce, and a new freight bridge is being built about 3 miles north of it, which is to cost \$2,000,000. St. Louis has 17 street railroads, of which 4 of the most important are cable and 3 are electric lines.

In 1889 there were 77 day schools, with an average attendance of 49,000 pupils and 1,169 teachers. The revenue for school purposes amounts to over \$1,000,000 annually. The board opened 47 new school-rooms in October, 1888, having devoted over \$60,000 to the building fund. There are over 220 church buildings. The trade in horses and mules exceeds that of any other city in the world, and the trade in hay that of any other in the country. St. Louis was made a port of entry under the act of 1870, permitting the shipment of foreign goods in bonds to interior ports from the port of first delivery. The direct importations under this act in 1888 were worth, in foreign values, \$3,315,187, upon which duties were paid amounting to \$1,517,905.73. St. Louis is noted for the manufacture of flour, in which it is only surpassed by Minneapolis. She has 13 large elevators, with capacities of from 200,000 to 2,000,000 bushels. As much as 12,150,000 bushels of grain are often stored in these at one time. The flour mills, of which there are 30, have a total capacity of over 6,000,000 barrels per annum, and employ capital to the amount of nearly \$3,000,000, and 1,500 employés.

St. Louis has 18 public parks and squares, the largest, Forest Park, having an area of 1,372 acres. Shaw's Garden, the gift of the late Henry Shaw to the city, is reputed to be the finest botanical garden in the world. The City Council has appropriated \$1,000,000 for the erection of a new city hall. The Public Library of St. Louis contains 70,000 volumes, and has a juvenile department of 4,000 volumes. The Mercantile Library contains over 71,000 volumes. Besides these are the libraries of Washington University and St. Louis University; of the St. Louis Bar Association, with 12,000 volumes; Young Men's Christian Association circulating library, and others. The School of Fine Arts has a large patronage, and the beautiful Memorial Art building contains a large number of rare works in statuary, painting, etc. Of newspapers and periodicals there are 11 daily publications, 62 weekly, 3 semi-weekly, 1 tri-weekly, 4 semi-monthly, 42 monthly—total number, 125. Of these, 105 are in the English language, 18 in the German, 1 in Spanish, and 1 in Bohemian.

MONTANA, a Territory of the United States until Nov. 8, 1889, on which date it was admitted to the Union as a State, by proclamation of the President; area, 146,080 square miles; population, according to the last decennial census (1880), 39,159; capital, Helena.

Government.—The following were the officers of the Territory until its admission on Nov. 8: Governor, Preston H. Leslie, Democrat, succeeded by Benjamin F. White, Republican; Secretary, William B. Webb, succeeded by Louis A. Walker; Treasurer, William G. Preuit; Auditor, James Sullivan; Attorney-General, William E. Cullen, succeeded by John B. Clayberg; Superintendent of Public Instruction, Arthur C. Logan; Chief Justice of the Supreme Court, Newton W. McConnell, who held over after resigning in December, 1888, until his successor, Henry N. Blake, was appointed by President Harrison and confirmed by the Senate late in March. (Early in February President Cleveland appointed D. S. Wade to this office, but the nomination was not confirmed by the Senate.)

Associate Justices: Thomas C. Bach, Stephen De Wolfe, and Moses B. Liddell.

On Nov. 8 the following State officials, elected on Oct. 1, assumed office: Governor, Joseph K. Toole; Lieutenant-Governor, John E. Rickards; Secretary of State, Louis Rotwitt; Treasurer, Richard O. Hickman; Auditor, E. A. Kenney; Attorney-General, Henri J. Haskell; Superintendent of Public Instruction, John Gannon; Chief Justice of the Supreme Court, Henry N. Blake; Associate Justices, William H. De Witt and E. N. Harwood. All these officers are Republican, except the Governor.

Finances.—The balance in the general fund of the treasury on Jan. 1 was \$114,340.48; the receipts for the year were \$145,717.62; the expenditures, represented by warrants paid, amounted to \$226,806.56; and there remained in the fund on Dec. 31 a cash balance of \$33,251.54, with no warrants outstanding. The small amount of receipts is due to a change in the law this year, postponing for one month the final day for payment of State taxes, so that on Dec. 31 about \$100,000 of the taxes assessed for 1889 had not been paid into the treasury. The expenditures included \$71,900 for support of insane; \$41,131.65 for support of convicts; \$34,288.29 for maintenance of militia; \$8,270 for bounties; and \$3,383 for support of the deaf, dumb, and blind. In the various stock funds on Dec. 31 there was a balance of \$8,269.50. There is no Territorial or State debt.

The assessed valuation of the Territory in 1889 was \$79,376,944, which includes 4,820,973 acres of land, \$15,168,662; 48,317 town lots, \$20,764,556; 150,910 horses, \$5,291,854; 548,322 cattle, \$10,682,041; and 1,180,603 sheep, \$2,762,041. The Territorial tax rate for 1889 was 20 cents on each \$100.

Territorial Legislative Session.—The seventeenth and last regular session of the Territorial Legislature began on Jan. 14, and ended on March 14. It passed two important measures, a registration act and a ballot-reform act, both applicable to the entire Territory. The registration act directs the county commissioners in each general election year to divide their counties into not fewer than two nor more than twenty election districts, and to appoint for each district a registry agent. The usual oaths and formalities are required in order to obtain registration, and none but persons duly registered shall be permitted to vote. The ballot-reform act closely resembles the Missouri law enacted this year.

Other acts of the session were as follow:

Providing for the care and maintenance of feeble-minded and imbecile children by the Territory.

Imposing a penalty for playing certain gambling games.

Creating the office of game and fish warden for each county, and revising the laws regulating hunting and fishing.

Creating the office of inspector of mines for the Territory.

Prohibiting lotteries.

Creating a Territorial board of medical examiners, and requiring practitioners of medicine to obtain a certificate or license from such board.

Providing for the organization of the National Guard of Montana.

Exempting from taxation for six years the property of the first paper mill, and of the first blast furnace

for the manufacture of pig iron, with puddling furnace, rolling mill, and nail mill attached, that shall be erected in the Territory.

Providing that the Governor shall appoint an inspector and an assistant inspector of boilers for the Territory.

Offering a bounty of \$2 for each mountain lion, bear, wolf, or coyote, and 50 cents for each wild-cat, lynx, or bob-cat.

Providing for a commission to codify the criminal and civil law and procedure, and to revise, compile, and arrange the statute laws of Montana.

Designating certain text-books for use in the public schools for six years, and the price at which they may be purchased.

Education.—For the school year ending in 1888, the number of school children in the Territory was reported to be 27,600; teachers employed, 442; school-houses, 316; their value, \$646,670; and the amount of county tax raised for schools, \$317,442.37. The only support hitherto available for public schools has been derived from the county tax; but with the beginning of Statehood the income from a State fund, to be derived from the sale or lease of school lands given by the Federal Government, will soon become available. The area of this donation for public schools is 5,120,000 acres. The fund will also receive a portion of the proceeds of land retained and sold by the Federal Government.

Charities and Prisons.—The insane of Montana are maintained at public expense by private individuals at Warm Springs, Deer Lodge County, and in the most satisfactory manner, though at heavy expense. The number of insane in the asylum on Oct. 1 was 185.

The Territorial prisoners, on Oct. 1, numbered 165. They were in the Penitentiary at Deer Lodge, which, in accordance with the admission act of Congress, became the property of the State of Montana upon its admission.

Mining.—There are in operation 10 gold mills, 18 silver mills, 7 lead smelters, 8 copper smelters, and about 25 concentrators, the combined capacity of which is not less than 5,000 tons a day. The principal mining city is Butte. Here are the great copper and silver mines of Montana, whose production increased from \$1,000,000 in 1880 to \$23,000,000 in 1888. The total product of gold, silver, copper, and lead for the whole State in 1887 is estimated to be worth \$25,483,272, and in 1888, \$32,475,000. These figures largely exceed those of any other State or Territory.

Railroads.—There are three transcontinental lines of railroad within the State. Besides these there are numerous short branches reaching out to mining camps and agricultural valleys. The completed lines are as follow: Union Pacific, Pleasant Valley to Butte, 140 miles; Montana Union, Silver Bow to Garrison, 44 miles; Montana Central and branches, 193.7 miles; St. Paul, Minneapolis and Manitoba in Montana, 408 miles; Northern Pacific in Montana, main-line, 781.9 miles, branches, 217.3 miles; total, 1,784.9 miles. The new lines projected and in course of construction will add about 283 miles.

The Admission Act.—On Feb. 22, 1889, President Cleveland signed the omnibus bill, permitting the admission of Montana, North Dakota, South Dakota, and Washington. By its terms,

Montana should receive, on becoming a State, the sixteenth and thirty-sixth sections of every township of the State, the proceeds from the sale of which should form a permanent public-school fund, and she should also be entitled to 5 per cent. of the net proceeds received from all sales of public land retained by the United States within the State, made subsequent to its admission, the sums so derived to be likewise a part of the permanent school fund. The State should also receive the following grants: 72 sections of unappropriated public lands, to create a fund for support of a State University; 50 sections for the purpose of erecting public buildings at the capital for legislative, executive, and judicial purposes; 140,000 acres for agricultural colleges; 100,000 acres for a school of mines; 100,000 acres for State normal schools; 50,000 acres for a deaf-and-dumb asylum; 150,000 acres for public buildings at the capital of the State, in addition to the grant before mentioned. The United States Penitentiary at Deer Lodge, and all lands connected therewith, were also given to the State. Another provision of the act appointed the Governor of the Territory, the Chief Justice, and the Secretary a commission to divide the Territory into twenty-five equal districts, from each of which three members of a constitutional convention, which should meet at Helena on July 4, should be elected. These officials published their apportionment on March 6, and on April 15 the Governor issued his proclamation calling an election in these districts on May 14 for delegates to the convention. At this election the Republicans elected 35 delegates, the Democrats 39, and the Labor party 1.

Constitutional Convention.—This convention met at Helena on July 4, and adopted a Constitution for the State of Montana, of which the following are the principal features:

The legislative power shall be vested in a Senate and House of Representatives, which shall be designated "The Legislative Assembly of the State of Montana."

Senators shall be elected for the term of four years, and Representatives for the term of two years.

No session of the Legislative Assembly, after the first, which may be ninety days, shall exceed sixty days. After the first session, the compensation of the members of the Legislative Assembly shall be as provided by law; *Provided*, That no Legislative Assembly shall fix its own compensation.

The Legislative Assembly (except the first) shall meet at the seat of government at twelve o'clock, noon, on the first Monday of January, next succeeding the general election provided by law, and at twelve o'clock, noon, on the first Monday of January of each alternate year thereafter, and at other times when convened by the Governor. The term of service of the members thereof shall begin the next day after their election, until otherwise provided by law; *Provided*, That the first Legislative Assembly shall meet at the seat of government upon the proclamation of the Governor after the admission of the State into the Union, upon a day to be named in said proclamation, and which shall not be more than fifteen nor less than ten days after the admission of the State into the Union.

The usual power to impeach and try State officers is given, and local and special laws forbidden.

No appropriation shall be made for charitable, industrial, educational, or benevolent purposes to any person, corporation, or community not under the ab-

solute control of the State, nor to any denominational or sectarian institution or association.

The Legislative Assembly shall have no power to pass any law authorizing the State, or any county in the State, to contract any debt or obligation in the construction of any railroad, nor give nor loan its credit to or in aid of the construction of the same.

No obligation or liability of any person, association, or corporation held or owned by the State, or any municipal corporation therein, shall ever be exchanged, transferred, remitted, released, or postponed, or in any way diminished by the Legislative Assembly; nor shall such liability or obligation be extinguished, except by the payment thereof into the proper treasury.

A census is to be taken in 1895, and every tenth year thereafter.

The executive department shall consist of a Governor, Lieutenant-Governor, Secretary of State, Attorney-General, State Treasurer, State Auditor, and Superintendent of Public Instruction, each of whom shall hold his office for four years, or until his successor is elected and qualified, beginning on the first Monday of January next succeeding his election, except that the terms of office of those who are elected at the first election shall begin when the State shall be admitted into the Union, and shall end on the first Monday of January, A. D. 1893. The officers of the executive department, excepting the Lieutenant-Governor, shall during their terms of office reside at the seat of government. They shall be elected at the time and place of voting for members of the Legislative Assembly. The State Treasurer shall not be eligible to his office for the succeeding term.

The Governor shall receive an annual salary of \$5,000, and the other officers \$3,000, except the Lieutenant-Governor, who shall receive a per diem allowance during the session of the Legislature, and the Superintendent of Public Instruction, who shall receive \$2,500. These sums may be changed by law.

The usual veto power is given to the Governor, and he may veto separate items of an appropriation bill.

The Governor, Secretary of State, and Attorney-General shall constitute a Board of State Prison Commissioners. The Legislative Assembly may provide for the temporary suspension of the State Treasurer by the Governor when the Board of Examiners deem such action necessary for the protection of the moneys of the State.

The Supreme Court, except as otherwise provided, shall have appellate jurisdiction only, which shall be co-extensive with the State, and shall have a general supervisory control over all inferior courts. It shall consist of three judges, to be elected by the people for six years, but the Legislature may increase the number to five. The clerk of the Supreme Court shall be elected by the people. Judges of the district courts, county attorneys, and justices of the peace shall be elected by the people.

Voters must be citizens of the United States and resident one year in the State, and in the county, town, or precinct such time as shall be fixed by law.

Women shall be eligible to hold the office of county superintendent of schools, or any school-district office, and shall have the right to vote at any school-district election.

Upon all questions submitted to the vote of the tax payers of the State, or any political division thereof, women who are tax payers and possessed of the qualifications for the right of suffrage required of men by this Constitution shall, equally with men, have the right to vote.

At the general election in 1892, the question of permanent location of the seat of government is to be submitted to the qualified electors of the State, and a majority of all the votes upon said question shall determine the location thereof. In case there shall be no choice of location at said election, the question of choice between the two places for which the highest number of votes shall have been cast shall be, and is hereby submitted in like manner to the quali-

fied electors at the next general election thereafter; *Provided*, That until the seat of Government shall have been permanently located the temporary seat of government shall be and remain at the city of Helena.

All mines and mining claims that are private property shall be taxed at the price paid to the United States therefor. The power to tax corporations or corporate property shall never be relinquished or suspended. The tax rate for State purposes shall not exceed three mills; when the taxable property of the State reaches \$100,000,000, it shall not exceed two and a half mills; and when it reaches \$300,000,000, it shall not exceed one mill and a half; but the rate may be increased by a majority vote of all those voting on the question at a general State election.

"Trusts" are forbidden. Contract labor in prisons and reformatories is prohibited. No law to authorize lotteries shall be passed. Amendments must be passed by a two-thirds vote of each House, and receive a majority of the votes at the next succeeding popular election. Existing Territorial laws not inconsistent with this Constitution are continued until altered or repealed.

The declaration of rights which forms the beginning of the Constitution contains provisions permitting aliens to own mines and mining property; declaring the use of water for sale, rental, distribution, or other beneficial use, and the rights of way necessary therefor, to be a public use; proscribing polygamy, and providing that laws for the punishment of crime shall be founded on the principle of reformation and prevention, but not abolishing the death penalty. It is also provided that the right of trial by jury shall be secured to all. In all civil actions and in all criminal cases not amounting to felony, two thirds of the jury may render a verdict. Provision was made for the submission of this instrument to a vote of the people on the first Tuesday of October, at which time a full set of State officers should be chosen. The convention adjourned on Aug. 17.

Political.—On Aug. 22 a Republican Convention assembled at Anaconda and nominated the following ticket for State officers: For Governor, Thomas C. Power; Lieutenant-Governor, John E. Rickards; Secretary of State, Louis Rotwitt; Treasurer, Richard O. Hickman; Auditor, E. A. Kenney; Attorney-General, Henri J. Haskell; Superintendent of Public Instruction, John Gannon; Chief Justice of the Supreme Court, Henry N. Blake; Associate Justices, William H. De Witt and E. N. Harwood; Clerk of the Supreme Court, W. J. Kennedy; Member of Congress, Thomas H. Carter. The platform contained the following declaration:

We pledge those who shall represent us in the Congress of the United States to maintain as standards of value the precious metals that have been recognized as such from the beginning of historic time.

We recognize that the welfare of Montana demands the maintenance of the existing duties on wool, lead, and copper.

We ask for such legislation as will subject to taxation property not exempt by our laws, other than that of the United States, that may be located upon military and Indian reservations within the boundaries of the State.

We call upon our Senators and Representatives to put forth their utmost exertions for the reduction of the Indian reservations in Montana to the narrowest possible limits that may be found consistent with the duties of the General Government toward the several tribes.

The Democrats met in convention at Anaconda, on Aug. 27, and made the following nominations: For Governor, Joseph K. Toole; Lieutenant-Governor, J. H. Conrad; Secretary of State, Joseph A. Browne; Treasurer, Jerry Collins; Auditor, T. D. Fitzgerald; Attorney-General, W. Y. Pemberton; Superintendent of Public Instruction, J. R. Russell; Chief Justice of the Supreme Court, Stephen De Wolf; Associate Justices, Francis K. Armstrong and Walter M. Bickford; Clerk of the Supreme Court, G. F. Cope; Member of Congress, Martin Maginnis. The platform pledged the votes of all who should represent the party in Congress "to secure the highest value to the products of our flocks, our herds, our farms, our forests, and our mines."

At the election, on Oct. 1, the proposed Constitution was adopted by a vote of 24,676 in its favor and 2,274 against it. The entire Republican ticket was elected except the candidate for Governor. For the latter office, Toole received 19,564 votes and Power 18,988. The vote for Lieutenant-Governor was: Rickards, 19,764; Conrad, 18,198; and for Congressman, Carter, 19,912; Maginnis, 18,264. Members of the State Legislature were chosen at the same time. The Republicans and Democrats each elected 8 Senators. In the House the Republicans elected 30 members and the Democrats 24, there being a tie in one district. These figures are as announced by the Territorial Canvassing Board, consisting of the Governor and Secretary of the Territory and the Chief Justice of the Supreme Court, appointed by the Admission act to canvass and declare the returns of this election. The accuracy and legality of the decision of the board relative to the returns from Silver Bow County were disputed by the Democrats, who claimed the right to 30 members of the Lower House of the Legislature upon a proper count.

The Silver Bow Election Contest.—The dispute concerning the political complexion of the Lower House of the Legislature elected on Oct. 1, arose from the action of the county board of canvassers of Silver Bow County in rejecting the returns from election Precinct Thirty-four, known as the "tunnel" precinct. As made up by the judges of election in that precinct, the returns showed 174 votes cast, of which 171 were for the Democratic candidates. The county board of canvassers, however, found the returns to be unsigned by the clerk of election, and otherwise irregular. Further investigation showed that the judges of election, after the closing of the polls, had counted the votes in secret, without the clerk of election or any other person being present, while the law expressly provides that the count shall be made publicly. Affidavits were also obtained showing that more than three Republicans had voted in the precinct, and that persons not qualified to vote had voted. Upon these facts, the county canvassers, a majority of whom were Republicans, rejected the returns and certified the election of six Republicans and four Democrats from the county. Had the vote of this precinct been counted, the legislative delegation would have been entirely Democratic, and the Lower House, instead of containing 30 Republicans and 24 Democrats, would have stood 30 Democrats and 24 Republicans.

No sooner had the canvassing board announced its decision than a writ of mandamus was sued out from the Supreme Court, to compel the board to count the rejected votes. The Territorial statute requires the board to "proceed to open the returns and make abstracts of the votes," and the Democrats claimed, with apparent right, that this gave it no power to go behind the returns presented or to reject anything. The mandamus case came up for a hearing before Judge De Wolf (a Democrat) in the last week of October, but delays and objections were interposed, so that the final decision was not reached until Nov. 7, when Judge De Wolf sustained the claim of the Democrats and ordered the mandamus to be enforced. By virtue of this decision the votes of Precinct Thirty-four were counted and certificates of election were issued by the county clerk to the Democratic legislative candidates. But meanwhile the Territorial Board of Canvassers, whose members were all Republicans, having received the official returns from all counties but Silver Bow, and having tried to obtain these from the Silver Bow County clerk without avail, proceeded to make their canvass without them. They had before them, however, the official certificate of the clerk that the county board of canvassers of Silver Bow had rendered certain returns as given in the certificate, but they had failed to count the Thirty-fourth Precinct, and that proceedings were pending in the courts, which made it impossible to certify the true vote. Taking the figures from this certificate to be true, the canvassing board thereupon proceeded to make up and certify the returns, rejecting the Thirty-fourth Precinct vote, and to issue certificates of election to the candidates found by them to be elected, including the six Republican candidates and the four Democratic candidates for Silver Bow County found to be elected by the county canvassing board. The Territorial board completed its canvass on Nov. 4, and forwarded the results to President Harrison, who, on Nov. 8, issued his proclamation admitting Montana to the Union.

State Legislative Session.—Immediately upon his inauguration, Gov. Toole issued his proclamation calling a meeting of the State Legislature to assemble on Nov. 23, for the purpose of electing two United States Senators and for other business. The Senate, as before mentioned, contained eight Republicans and eight Democrats, with a Republican Lieutenant-Governor as the presiding officer, having the deciding vote in case of a tie. In the House there were two sets of members from Silver Bow County, one claiming under certificates issued by the county clerk, another under certificates issued by the Territorial Board of Canvassers, as above explained. As a result of this state of affairs, the Democratic members whose election was undisputed, together with the Democratic claimants from Silver Bow County, numbering 30 in all, and being a majority of the 55 members to which the House was entitled by law, assembled at a place indicated by the Democratic Governor and proceeded to organize, a quorum being present. At the same time, the undisputed Republican members, together with the Republican claimants from Silver Bow County, numbering 30, also assembled at a place designated by the Republican State

Auditor and organized, a quorum being present. No organization of the Senate was effected for some time, as the Democratic members refused to attend the sessions, leaving no quorum. On Dec. 18 the absentees appeared and were sworn in. Gov. Toole then sent his message to the Senate and to the Democratic House, ignoring the Republican House. Efforts to reach some agreement were made by the Democrats, but without avail, and the Democratic Senators again absented themselves. On Dec. 30 the eight Republican Senators, in joint session with the Republican House, elected Wilbur F. Sanders to be United States Senator, and on Jan. 2, 1890, the same body elected Thomas C. Power to be the second United States Senator. The Democratic Senators then entered into joint session with the Democratic House, and on Jan. 7, 1890, elected William A. Clark and Martin Maginnis to the same offices. The rights of these rival claimants must be decided by the U. S. Senate.

In order to determine which of the two Lower Houses was legally organized, a suit was brought against State Auditor Kenney by one of the Democratic claimants from Silver Bow County, to compel the Auditor to pay him his salary. Arguments were heard in this case before the district court late in December, but no decision had been reached before the end of the year. The decision of the case involves the question of the legality of the county clerk's certificate under which Roberts held.

MONTENEGRO, a principality in eastern Europe. There is a Constitution, originally granted in 1852, modified in 1855, and supplemented in 1879 by an organic statute vesting the legislative powers in a Council of State of eight members, half of whom are elected by the people. Practically the prince rules as an absolute monarch. The reigning Hospodar is Nicholas I, born Sept. 25, 1841, who succeeded his uncle, Danilo I, when that prince was assassinated in 1860. The area is estimated at 3,630 square miles, including the district of Duleigno, which was transferred to Montenegro by the Berlin Treaty of 1878, and partially evacuated in 1880, though the boundaries were not definitely settled till 1887. The population has been estimated at 236,000. The people belong to the Servian race. The Prince was formerly the head of the Church, but since 1852 ecclesiastic affairs are directed by a bishop consecrated by the Holy Synod of Russia. There are 4,000 Roman Catholics and 10,000 Albanians and Slavs in the principality who adhere to the religion of Mohammed.

The exports are of the average value of 2,000,000 florins, the chief articles being cattle, lambs, goats, cheese, smoked fish, smoked mutton, insect powder, sumac, hides, skin, wool, and furs. Education is free and compulsory. All the male inhabitants are trained to arms, and all between fifteen and fifty can be called into service, except the Moslems of Duleigno, who pay a capitation tax in lieu of military duty. Aside from the Prince's body guard of 700 mounted men there is no standing military force.

The financial accounts are not published. The Prince's civil list is 100,000 florins. Since the Crimean War the Russian Government has paid to Montenegro a yearly subsidy of 48,000 rubles, and Austria has contributed about 30,000 florins

for the maintenance of highways. The revenue receipts are estimated at 600,000 florins, derived from taxes on land and cattle, the salt monopoly, and a duty of 4 per cent. on all imports.

Famine.—In 1889 there was a bad harvest, and severe destitution was felt throughout Montenegro. It was relieved for a time by the stock of grain that the Prince had the foresight to purchase in the spring, and by contributions from Russia. The imperial family gave 400,000 rubles in aid of the distressed. The only permanent remedy that commended itself to the judgment of the Prince and his advisers was wholesale emigration. In Servia there is a superfluity of cultivable land, and the Government of that kingdom gave permission for the colonization of 1,200 Montenegrin families. Between the middle of October and December, four parties were sent to Servia numbering 6,360 souls.

Family Alliances.—Prince Nicholas is the descendant of Peter Njegosh, who freed the country from Turkish rule in 1697, proclaimed himself hereditary vladika, or prince-bishop, and formed a political alliance with Russia. Through all the phases of the Eastern question the Montenegrin Prince has remained true to the Panslavonic idea of Russian supremacy and protection over the southern Slavs, in spite of the cajoleries and threats of Austria. His fidelity to Russian policy has been recompensed with gifts and honors, and the little nation of soldiers has repaid the special care the Imperial Government has bestowed on its welfare by furnishing agents of disturbance and guerilla bands to keep alive the spirit of conflict and revolt in Roumelia, Macedonia, and Bosnia. Companies of Montenegrins, armed to the teeth, acting as guards to the Russian consulates, have taken an active part in the plots and insurrections against the Bulgarian Government. The relations between the Prince and Russian aims in the Balkan peninsula have been accentuated by family alliances. A toast offered by the Czar on May 30, 1889, to the Prince of Montenegro as "The only sincere and loyal friend of Russia," produced a sensation in the political world. He had in mind more particularly the Balkan states, but in Germany, where the slight of the Czar to the Emperor in not yet returning his visit was keenly resented, the widest significance was attached to the words. The nuptials of Princess Militza, second daughter of the Prince, with the Russian Grand Duke Peter Nicolaievitch were near at hand when the Emperor Alexander proclaimed his friendship for Prince Nicholas, whom shortly before he had made a Russian general.

MORAVIANS. The following is a summary of the statistics of the Moravian Church, or Church of the United Brethren, to Dec. 31, 1888, as given in the "Moravian Almanack and Year-Book" for 1890. The provinces or districts represented are the British (38 congregations); German (27 congregations); Diaspora laborers; American, Northern (60 congregations); American, Southern (6 congregations); Bohemia and the missions (107 stations); whole number of communicants, 51,258; total of members, 118,436; number of pupils in Sunday-schools, 28,001, who are under the care of 2,790 teachers; number of boarding schools, 36, with 2,601 pu-

pils; of day schools, 267, with 22,272 pupils. The two American districts together returned of these, 11,219 communicants, 17,848 members, 9,017 pupils and 1,110 teachers in Sunday-schools, and 4 boarding schools with about 500 pupils. The Moravian College and Theological Seminary, at Bethlehem, Pa., has about 30 students.

The missions—in Greenland, Labrador, Alaska, among the North American Indians, in the West Indies, Mosquito Coast, Surinam, South Africa, Australia, and Central Asia (Kylang and Poo, British Tibet)—return 111 stations, with 22 filials; 343 missionaries, 51 of whom are native; 1,659 native assistants; 29,971 communicants;

—and conducting missions in Europe, Asia, Africa, Australia, and America. Its central and controlling court is the General Synod, which meets once in ten years at Herrnhut, in Saxony. During the interim between the meetings of the General Synod the affairs of the Church are supervised by the Unity's Elders' Conference, an executive board of twelve members, which has its seat at Berthelsdorf, near Herrnhut. This board acts under special forms of organization, in the triple capacity of special executive board of the German Province; with the inclusion of representatives of the several provinces and mission fields as the directory of the work among the heathen; and with the inclusion of the members



HOUSE OF THE MORAVIAN SISTERHOOD, BETHLEHEM, PENN.

55,835 baptized adults, candidates for baptism, etc., making a total of 85,806; 232 day schools, with 19,794 pupils; and 107 Sunday schools, with 14,974 pupils. The income of the missions in 1888 was £19,500, while the expenditures were £19,402. The sum raised annually at the various stations toward the support of the work (by contributions of the members or by trade, as well as by special gifts for school purposes), is estimated at £25,000. Including the interest of capitals left for the support of specific missions. Government aid, etc., the actual expenditure of the whole mission work reaches £50,000. About 2,300 brethren and sisters have been employed in this service from its beginning in 1732.

The *Unitas Fratrum*, or Moravian Church, is an œcumenical organization divided into three provinces—the German, British, and American

of the missionary department, as the board of appeal for the whole Church. The General Synod is composed of the members of the Unity's Elders' Conference, delegates from the Elders' Conferences of the provinces, the bishops and other general officers, nine delegates from each of the three provinces chosen by the provincial synods, and representative missionaries—making sixty members in all. The General Synod met in Herrnhut, May 27, and continued in session till the 1st of July. A large proportion of the time was devoted to the consideration of missionary affairs. The work of the missions had been extended during the last ten years especially in Surinam, the Mosquito Coast, Caffraria, the Cape Colony, and Alaska, and the number of converts had increased by 11,031. Measures were taken in continuation of a plan set on foot by

the previous General Synod, to promote the rise of the West Indian missions to self-support. Endeavors were advised to encourage the training of native preachers in other mission lands. A new mission, to be begun in the Island of Trinidad, was resolved upon. Measures were taken to provide for the consecration of a bishop for each of the larger missionary fields. The chapter on the use of the lot was ordered omitted from the General Synod results; but, according to the report of the Unity's Elders' Conference, those who wish the lot for their private guidance will not be deprived of it. It will simply not be forced upon any. The Synod expressed "its deep-rooted abhorrence of the traffic in intoxicating liquors among uncivilized heathen races, by means of which the natives are not only morally ruined, but also rendered perfectly incapable of receiving the Gospel," and all Christians and friends of missions, and the mission department in particular, were urged to use every opportunity to protest against the evil, and to endeavor to check it.

MOROCCO, a sultanate in northern Africa. The Sultan is the religious head and absolute despotic ruler of the country. The present Sultan is Muley Hassan, born in 1831, who succeeded to the supreme power on the death of his father, in 1873. The area of the empire is estimated at 316,000 square miles. The population has been estimated by Dr. Gerard Rohlfs at 2,750,000, and by others as high as 10,000,000. More than half are Berbers, and the rest are Moors, Bedouin Arabs, Jews—who are estimated at 340,000—and negroes. The Moors are a mixed race resulting from the intermarriage of Arabs with the aboriginal Berbers. There are not more than 1,500 Christians. Fez, the largest city, has about 150,000 inhabitants. The other two political capitals are Mequinez and Morocco. The Emperor of Morocco is nominally joined in the direction of ecclesiastical affairs by the chief of the order, Muley Taieb, but north of the great Atlas mountains his word is law in religious more unrestrictedly than in political matters, while in south Morocco he can exert very little political authority, and his coadjutor is recognized as the head of the faith. The representatives of European powers do not reside at the capital, as in all other countries, nor come in contact with the Sultan's court, but have their residence at Tangier, where they deal directly with the Minister of Foreign Affairs; and all questions must be referred to the Sultan by means of couriers, and often months pass by before an answer is returned.

Commerce.—The imports in 1887 were valued at 32,556,000 francs, and the exports at 24,923,000 francs. Chief among the imports were cottons, of the value of 14,169,000 francs, and sugar, of the value of 4,639,000 francs, after which came raw silk, linen goods, tea, iron and steel manufactures, candles, and spices. The largest exports were pease and beans, of the value of 4,165,000 francs; wool, 4,151,000 francs; maize, 3,356,000 francs; goat skins, 2,361,000 francs; cattle, 2,104,000 francs; almonds, 1,218,000 francs. Other products that enter into the foreign trade are eggs, olive oil, gum, slippers, wax, canary seed, and dates. The tonnage entered under the various flags in 1887 was as follows: French, 214,-

123; English, 190,371; Spanish, 51,863; German, 13,268; Portuguese, 8,267; Swedish and Norwegian, 1,415; Danish, 1,415; all other countries, 1,938. German trade in Morocco has gained ground in the past two or three years, and the Sultan has ordered a dozen vessels in Germany, and employed German engineers on the harbor works at Tangier. His contracts for arms have been given to Italians, and an Italian engineer and two military officers have been commissioned to establish a rifle factory at Fez. Belgians have been employed to build a railroad, while French capitalists have sought, so far in vain, for a concession to extend the Algerian railroads into Morocco.

Campaign against the Kabyles.—The Sultan does not exercise effective sovereignty over more than one third of the people of the empire. The Berbers are inimical to the dynasty and filled with hatred for the other two races. Hence the necessity of a large standing army to guard the Sultan in the city where his residence is temporarily placed, and especially during his progress from one capital to another, when frequently he has to withstand the attacks of mountain tribes. In April, 1889, a sanguinary conflict between the allied tribes of Angad and Beni Hassan and the Mhaya tribe was reported, in which the latter inflicted a loss of 800 men on its adversaries. In June the Sultan left Fez at the head of a strong army on an expedition into the mountains of the north in order to punish the Arab Kabyles, who had rebelled against his authority, and refused to pay tribute. He proceeded from the town of Tazza to Gayatsa in the Kabyle country, and continued his journey through the mountain Kabyles to Tetouan, reducing the inhabitants of Beni Zeroual, and afterward those of Kmas, to subjection after an exterminating campaign. While the harem was installed in the palace at Tetouan and munitions were being accumulated there for the purpose of making it a strong fortress, the Kabyles came from the interior and devastated all the fields of grain and gardens up to the environs of the town. On Sept. 4 Muley Hassan made his entry into the place. The mountain tribes made no such general resistance to the financial requisitions of the Sultan as they have in times past, being impressed with the strength of the army that accompanied him and the unusually large supply of ammunition with which the troops were provided. Most of the rebel tribes made their submission at his approach, with many protestations of loyalty. Wherever they attempted to resist he followed the custom of the country, subduing the rebels with terrible carnage, striking off the heads of a certain number, and sending others in chains to the prisons of Fez and Morocco.

Difficulties with England.—The Northwest Africa Company took possession of an island at Cape Juby, south of Sous, being upheld by the British Government in spite of the Sultan's protest that the island was a part of his dominions. The Sultan said the English should not trade, and prevented all trade in that quarter. In March, 1888, Moors destroyed the factory, driving out the Englishmen, one of whom, named Morris, was killed. For this the British Government demanded an indemnity of \$250,000 with

\$25,000 additional to be paid to the wife of the trader who lost his life in defending the station. The smaller sum the Sultan agreed to pay, but not the other claim till after fuller consideration. Juby, he said, is in his possessions, but is so far removed from his capitals that he can not hold himself responsible for the lives of Europeans there. Much friction was caused by the action of the English in laying a cable from Gibraltar to Tangier against the wishes of the Sultan, who in withholding his permission was supported by the diplomatic representatives of other powers. The cable was laid secretly, and connected with the shore. The Sultan demanded that it should be removed, but this the English minister, Sir William Kirby-Smith, refused. The Sultan even offered to pay a large sum if the company would take up the wire, and finally ordered that it should be cut. His officers severed the cable as they supposed, but it was only a false one. Early in 1889 the cable either broke or was found and cut by the Moors. The company applied for permission to complete the cable. The Sultan replied that he would grant it as soon as he had the concurrence of all the European representatives at Tangier. The British minister, who had slyly circumvented the Moorish authorities was sick at the time that permission to repair the cable was openly asked, and also to extend it to Mogador. The difficulties between the governments had led to various indignities being put upon Englishmen by the officials, and a few weeks before English travelers had been assaulted by the mob in the streets of Rabat. In order to restore British prestige, settle finally the cable question, and influence the decision of the Cape Juby matter, the English Government decided to try the proved remedy of intimidation. About April 1, five large men-of-war suddenly entered the harbor of Tangier, and the menace had the desired effect, for the cable was openly laid without any opposition along the beach. The indemnity of \$25,000 for the killing of Mr. Morris was paid on April 10.

Quarrel with Spain.—The Spanish Annexationists were dissatisfied with the results of the mission sent by the Sultan to Pope Leo XIII, which the Moors were led to believe would bring about the conference that had failed to meet because France and England could not agree on the programme. The Moorish embassy to Germany and its brilliant reception, the rumored project of a German coaling-station on the coast of Morocco, the Italian contracts, the French and Belgian railroad enterprises, the English cable, and the spread of English influence in the interior of Morocco, were all considered as diplomatic advantages gained over Spain, and laid to the charge of Diosdado, the Spanish minister at Tangier, who was recalled by the Government as soon as he was attacked in the Cortes, and in his place Figuera was appointed. A subsidized line of steamers between Cadiz and Tangier was expected to promote Spanish commerce and influence; yet there were no appreciable results, while the trade with England, Germany, and France grew steadily. France succeeded in having the obnoxious governor of the oasis of Figuig removed and a man devoted to her interests appointed. When the Sultan, in deference to the naval demonstration at Tangier, desisted from

his opposition to the laying of an English cable to Mogador, the new Spanish minister intimated the intention of his Government to take possession of the small territory of Santa Cruz de Mar Pequeña, south of Mogador, near the mouth of the Yfuu river, the Spanish claim to which was conceded by the Sultan in 1883. On Sept. 5, the people of Zamozet, on the Riff coast, pillaged a Spanish coasting vessel in the Bay of Alhucemas, and carried off the captain, a passenger, and four sailors as hostages, to avert punishment. A gunboat from Alhucemas went to the Riff coast, and recovered the vessel. Some men who landed under a flag of truce were fired on by the natives. The vessel that was plundered was said to be a smuggler conveying arms and ammunition to a rival tribe. Nevertheless, the Spanish Government demanded an indemnity, as well as the liberation of the captive Spaniards. The Moorish Minister of Foreign Affairs suggested an inquiry as to whether the vessel was attempting to land contraband. The owners asserted that she was bound for Tangier to get a cargo of cattle, poultry, and eggs and return to Malaga, but was carried out of her course by the current. The incident seemed to the Africanists in Spain to furnish an opportunity for establishing Spanish predominance in Morocco, and therefore a great popular agitation and commotion were aroused. The Government, for two days after the affair became known through private channels, took no measures except to call for the release of the captives and institute inquiries, being aware of the questionable character of the plundered vessel, and was only driven to take an aggressive tone by the agitation of the annexationists. The attack on the Spanish landing-party afforded a colorable pretext for energetic action aside from the original cause of the difficulty. A Spanish squadron was ordered to Tangier, where it was anchored when the Sultan made his public entry into the city, and took part in the salutes and honors paid to the Moorish ruler. When the news came that the Riffians had fired on a boat's crew from the gunboat "Cocodril" 20,000 men were ordered to the seaboard, and 20,000 more were called to arms. The Sultan sent commissioners to the Riff coast, on receiving the first communication from the Spanish minister, to demand the release of the imprisoned sailors and threaten with death any person guilty of killing Christians. The captors surrendered the Spaniards. Urged by the English Government, the Sultan expressed a willingness to accede to all reasonable demands.

MUSIC, PROGRESS OF, IN 1889. In looking back upon the achievements in dramatic music during the past year, we observe a preponderance of German and Austrian composers. Although dozens of newly created operas are heralded from France every year, we do not hear of their performance; only one opera of the serious style was brought out in Paris in 1889. In comic opera, the French composers proved more active, and Italy did not fail to do its share, while England also showed greater productiveness than usual. The great "boom" in operettas seems to be abating; although, especially in Germany, the number of novelties is still more than is desirable, the majority are evidently short-lived. France, which once supplied the world with pro-

ductions of this kind, is outdone by Italy, where, of late years, the operetta has been cultivated to a greater extent than the opera seria. Of ballets and spectacular pieces there was a profusion in all the principal countries of Europe. But we will pass the events themselves in review, giving precedence to Germany, where New Year's Day was celebrated with the patriotic work of a native composer.

Operas.—"Des grossen König's Rekrut," patriotic opera in three acts, by M. Clarus, libretto by W. Meves (Brunswick, Hoftheater, Jan. 1); the subject is an episode during the Seven Years' War, treated musically in the style of operetta rather than grand opera. The several effective military scenes with which the work is interspersed met with particular favor. "Der Sanct Katharinentag," romantic opera in three acts, by Wilhelm Freudenberg, who also wrote the libretto (Augsburg, Stadttheater, Jan. 4), conducted by the composer, who scored a decided success. "Der alte Dessauer, patriotic opera in three acts, by Otto Neitzel, libretto by Paul Kurth (Wiesbaden, Hoftheater, Jan. 27). "Jakobyn" (The Jacobin), Czechish romantic opera in three acts, by Anton Dvorák, libretto by Mme. Marie Cervinka-Rieger (Prague, National Theatre, Feb. 12); the work, which was received with much enthusiasm, lacks uniformity of style, inclining partly to comic and partly to grand opera, but is invested with much dramatic fire, melodious invention, and ingenious treatment in general. "Reinhardt von Ufenau," romantic opera in four acts, by Franz Curti (Zürich, Feb. 18, Altenburg, Hoftheater, April 7). The performance at Zürich was attended by a large audience, whose sympathy increased with every act; what characterizes the composition in the first place, is the excellent instrumentation with its manifold and surprising effects; Wagner has been the composer's model, who, nevertheless, asserts remarkable independence. The vocal parts are skillfully treated, and the melodies are the outcome of a healthy natural sentiment. Several of the choruses are strikingly original, and the conclusions of the first, second, and fourth acts most impressive. "Fernando," by Wilhelm Floderer (Brünn, Stadttheater, February). Without pretension, the work is distinguished for excellent orchestration, and contains many pleasing original melodies: it met with the kindest reception. "Der Meisterdieb," Eine deutsche Mär in drei Theilen, by Eugen Lindner, libretto, freely after Arthur Fitger's poem, by Gustav Kastropp and the composer (Weimar, Hoftheater, March 3), conducted by the composer (Dresden, Hoftheater, Sept. 18), met in both places with a thoroughly favorable reception. "Manuel Venegas," in a prelude and three acts, by Richard Heuberger, libretto by Josef V. Widmann, after a novel of Juan Ruiz de Alarcón (died 1639) (Leipsic, Neues Stadttheater, March 27). Although the composer was the recipient of many honors, the opera is severely discussed by the Leipsic critic Bernsdorf, who reproaches the composer with the tendency to "out-Wagnerize" the master of Bayreuth. "Die Bergknappen," by Armin Fröh, libretto by Theodor Körner (Nordhausen, in March), conducted by the composer. The opportunities latent in the poet's text have been skillfully embraced by the com-

poser; an important part is assigned to the chorus, the single persons and situations are well characterized, and the gradation of effect is well-nigh perfect. "Philippine Welser," in five acts, by Carl Pohl, libretto after the drama of Oscar von Redwitz (Stettin, Stadttheater, in March), conducted by the composer. "Die Königsbrant," in three acts, by Robert Fuchs, libretto by J. Schnitzer (Vienna, Hofopertheater, March 27). The gloomy Elfrida legend here appears for the first time treated from a cheerful point of view; King Edgar does not wed the fair Elfrida, but her sister, and Ethelnoth, the king's friend, is not murdered by him, but remains in possession of his wife coveted by the king. The libretto betokens more than usual dramatic skill and feeling for scenic effects, but unfortunately often suggests the operetta, which element curiously enough is increased rather than lessened by the character of the music, otherwise highly commendable. "Die letzten Tage von Thule," romantic opera in four acts, by Georg Rauchen-ecker (Elberfeld, Stadttheater, April 2). "Loreley," romantic opera in four acts, by Emil Naumann, libretto by Otto Roquette (Berlin, Königliches Opernhaus, April 9). "Eddystone," in three acts, by Adolf Wallnöfer, who also wrote the libretto, after a novel of Wilhelm Jensen (Prague, Deutsches Landestheater, Sept. 27); the composer, who is the heroic tenor at that theatre, sang the principal part (Lord Edgar), and was the recipient of numerous honors, in his triple capacity. The music is conceived entirely in the spirit of Wagner, the main part being assigned throughout to the orchestra, which seems the more strange, as the composer is a singer. "Der Vasall von Szigeth," in four acts, by Antonio Smareglia, libretto by Luigi Illica and F. Pozza, translated into German by Max Kalbeck (Vienna, Hofopertheater, Oct. 4), won considerable success, especially with the first two acts, while the last act proved less effective. The composer, who is totally blind and hard of hearing, was repeatedly called before the footlights. "Der Rubezahl," Czechish opera, by J. R. Rozkošný (Prague, National Theatre, Oct. 18). "Das Mädchen vom See," romantic opera in three acts, by Otto Klauwell, libretto by Leo Vonderwied, after Gerstäcker's tale "Germelshausen" (Cologne, Stadttheater, Oct. 20). The music of this dramatic maiden effort of the composer, who is professor at the Conservatory of Cologne, is firmly rooted in the soil of the romantic school, showing the influence of Schumann; its success was very fair. "Emerich Fortunat," in three acts, by E. N. von Reznicek, libretto by Eduard Dubský von Wittenau (Prague, Deutsches Landestheater, Nov. 8). "Die Hochzeit des Mönchs," in four acts, by August Klughardt (partly remodeled, Dessau, Hoftheater, Nov. 15). "Rusalka" (The Water-nymph), Russian opera, by Dargomizsky (Prague, National Theatre, Nov. 23), for the first time outside of Russia. "Der Richter von Granada," in three acts, by Richard von Perger, who also wrote the libretto (Cologne, Stadttheater, Dec. 8), earned much applause, well deserved by the intrinsically worthy music offered by the composer in this, his first dramatic effort. "Marino Faliero," by Wilhelm Freudenberg (Ratisbon, Stadttheater, Dec. 29). "Esclarmonde," romantic opera in four acts, by

Jules Massenet, libretto by Alfred Blau and Louis de Gramont (Paris, Opéra-Comique, May 16), met with the warmest reception, which neither libretto nor music fully deserved; the love scenes in the third and fourth act, and all the lyric moments of the opera, are the best, while in the dramatic scenes the composer's inventive power does not prove adequate to his task. "Brinio," lyric opera, by Van Millingen, libretto by Van Lochen (Amsterdam, Park-Theater, in August). "Norma," by J. Rijken (Rotterdam, end of November). "Marcos Botzaris," Greek opera, by Carreris (Marseilles, Théâtre du Gymnase, October), by a Greek opera troupe. "Aben-Hamet," by Théodore Dubois (Paris, at Mme. Calzado's, Dec. 11), accompanied on the pianoforte by the composer. "Flavia," by Sauvignat (Lisbon, Teatro Doña Maria, in August). "Edgar," in four acts, by Giacomo Puccini, libretto by Ferdinando Fontana (Milan, Scala, April 22). "Agnese Visconti," by Antonio Nani (Malta, Royal Opera House, in Spring). "Beida," by Angelo Bottagisio, libretto by Ugo Capetti (Milan, Teatro Manzoni, in September). "Clara," by Panizza-Pugnalinì (Milan, Teatro Manzoni, in September). "William Ratcliffe," by Emilio Pizzi, libretto by Zanardini (Bologna, Teatro Comunale, Oct. 31), scored a great success; the composer was called forth twenty-five times. "I Corsari," by Giuseppe Guardione (Florence, Teatro Umberto). "Adriana Lecouvreur," by Ettore Perosio (Genoa, Teatro Paganini, Nov. 13). "Mariska," by Giacomo Dell' Orefice (Turin, Teatro Carignano, in November). "La Battaglia di Dame," by Giovanni Ferrua, libretto by Maurizio Toussaicat (Turin, Circolo Artistico, Dec. 6). "Gorjuscha," Russian opera in four acts, by Anton Rubinstein (St. Petersburg, Marien-Theater, Dec. 3), on the occasion of the composer's jubilee. "The Rose of Windsor," by Walter Parke and Bond Matthews (Accrington, England, in August). "The Castle of Como," by George Cockle, libretto by Searle, after Bulwer's "Lady of Lyons" (Liverpool, October; London, Opera Comique, November). "Belphegor," romantic opera in three acts, by Alfred Christensen (South Shields, Theatre Royal, Oct. 27). "Theodora," by Willie W. Furst (San Francisco). "Lo Schiavo," by Carlos Gomez, libretto by Alfred Tannay and Rodolfo Tarravacini (Rio de Janeiro, Teatro Imperial, Sept. 28).

Comic Operas.—"Eros," in one act, by Frédéric Le Rey, libretto by Goujon and Daniel (Rouen, Théâtre des Arts, in January). "Nadia," in one act, by Jules Bordier, libretto by Paul Milliet (Brussels, Théâtre de la Monnaie, Jan. 18). "La Cigale madrilène," in two acts, by Joanni Perronet, libretto by Léon Vernoux (Paris, Opéra-Comique, Feb. 15). "Le Seigneur Pandolfo," by Gustave Canobi, libretto by D'Hervilly (Rennes, Grand Théâtre, in February). "Rencontre imprévue," in one act, by Richard Mandl, libretto by A. Larssonneur (Rouen, Théâtre des Arts, in March). "La Jeunesse d'Haydn," by Mlle. C. Carissan (Paris, at Duprez's house, April 3). "Jenny," by Clément Broutin (Roubaix, in April). "Joël," by Gilbert des Roches (Baroness Legoux) (Nice, April 11). "La Sérénade," in two acts, by André Martinet, libretto by Charles Fourcault (Geneva, Cursaal-Theater, in summer). "Pierrot puni," in one act, by Henri Cieutat,

libretto by Sémiane and Gères (Geneva, Cursaal-Theater, in August). "Le Contrat," by J. J. G. Pénavaire, libretto by Jules Ruelle (Boulogne-sur-Mer, in September). "Un Modèle," by Léon Sehlesinger, libretto by André Thomas and Lerouge (Blankenberghe, Belgium, in September). "Dédamie," by Henri Maréchal, libretto by Edouard Noël (Rouen, Théâtre-Lyrique-Français). "Cornarino," by Léon Rosellen, libretto by Felix Cohen (Paris, Bouffes-Parisiens). "La Meunière de Marly," by Maurice Lefèvre (Brussels, Théâtre de la Monnaie, Dec. 14). "Gli Amanti di Teruel," by Tomas Breton (Madrid, Teatro Real, in February). "Occhi azzurri," in one act, by Cavaliere, libretto by Erminia Marzochi (Fossano, Piedmont, in March). "Leonina," by Guiseppe Verdi (not the famous Verdi) (Cremona, Teatro Concordia, in April). "Le donne curiose," in three acts, by Emilio Usiglio, libretto after Goldoni's well-known comedy (Rome, Teatro Costanzi, in April), met with the most flattering reception; the opera is commended as one of the happiest contemporaneous efforts in this field. "L'Oste gabbato," burlesque opera, by Cesare Augusto Furlanetto (Venice, Istituto Marco Foscari, in April). "Ettore Fieramosca," by Lueidi (Rome, Teatro Costanzi, September). "Cavalleria rusticana," by Gastaldon, libretto by Bartocci-Fontana (Rome, Teatro Nazionale, in September). "Nana," intermezzo by Alfredo Donizetti, libretto by Bignotti (Milan, Teatro Filodrammatico, in October or November). "Il piccolo Haydn," by Alfredo Soffredini, who also wrote the libretto (Faenza, Teatro Comunale, in November). "Nerina," in three acts, by Carlo Chiappani (Trent, Nov. 16). "Lully," lyric-comic opera in four acts, by Carl Hofmann, libretto by Josef Weyl (Stettin, Stadttheater, March 5). "Margot's Entführung," by J. C. Metzger, libretto by A. Schirmer (Troppau, in March). "Eulenspiegel," a musical comedy in two acts, by Cyrill Kistler (Würzburg, Stadttheater, April 15). "Iduna," in three acts, by J. P. Gotthard, libretto by Bohrmann-Riegen (Gotha, Hoftheater, April 17; Coburg, May 12). "Die Brautfahrt," romantic-comic opera, by Hermann Winter (Salzburg, Stadttheater, in April). "Die Braut von Fraseati," in four acts, by Adolf Arenson, libretto after the Italian, by J. Montell (Hamburg, Stadttheater, Oct. 25). "Die Brautschau," by Oscar Fuchs, libretto by Albert Kasten (Neustrelitz, Hoftheater, in October). "Margitta," in three acts, by Erik Meyer-Helmond, libretto by R. Bunge and J. Freund (Magdeburg, Stadttheater, Dec. 5). "In Florenz," Swedish opera buffa, by Mme. Helene Munktel (Stockholm, Royal Theatre, in July or August). "Paul Jones," in three acts, by Robert Planquette (London, Prince of Wales Theatre, Jan. 12); the title rôle, written originally for a baritone, was created by an American singer, Miss Agnes Huntington, whose rich contralto voice seemed to meet all the requirements. Being at the same time an excellent actress, she made a most favorable impression, and is warmly praised by the critics. "Delia," by Procidia Bucalossi (Bristol, England, Princess Theatre, in March). "Pickwick," by Edward Solomon, libretto after Dickens (London, Comedy Theatre, in March). "Doris," in three acts, by Alfred Cellier, libretto by H. P. Stephenson (London, Lyric Theatre,

April 20). "Mignonette," by Henry Parker (London, Royalty Theatre, in April). "Marjorie," in three acts, by Walter Slaughter (London, Prince of Wales Theatre, July 18). "Penelope," by Edward Solomon, libretto by Hawtrey (London, Comedy Theatre, in October). "La Prima Donna," by Tito Mattei, libretto by Murray (London, Avenue Theatre, Oct. 16). "The Red Hussar," by Edward Solomon, libretto by H. C. Stephenson (London, Lyric Theatre, in November). "The Rustic," by W. F. Halley (in Adelina Patti's Welsh castle, Craig-y-Nos, in October). "America," by Ernst Seiler, libretto by W. A. Smith (Philadelphia, Academy of Music, in January). "Said Pasha," in three acts, by Richard Stahl, libretto by the composer and by Scott Marble (Philadelphia, Grand Opera House, Jan. 14; New York, Star Theatre, Feb. 25); brought out before (1888) in San Francisco, where it ran for one hundred nights. "The Royal Tramp," by Charles Puerner (Philadelphia, Jan. 28). "Priscilla, or the Pilgrim's Proxy," by Thomas W. Surette, libretto by Henry D. Coolidge (Concord, Mass., in February). "Don Quixote," by Reginald de Koven and Harry B. Smith (Boston, Nov. 18).

Operettas.—"Die Traumprinzessin," by H. Maria Wallner, libretto by F. Heidrich and V. Horak (Baden, near Vienna, Stadttheater, Jan. 5). "Der Schlosserkönig," by Eduard Kremser, libretto by Ludwig Held and Schier (Vienna, Theater an der Wien, Jan. 12). "Die indische Wittwe," by Gustav Geiringer, libretto by R. Genée and F. Zell (Vienna, Theater an der Wein, Feb. 9). "Der Sklavenhändler," by Franz Soucoup, libretto by Paul von Schönthan and H. Bohrmann (Hamburg, Carl-Schultze Theater, Feb. 9). "Capitän Fracassa," by Rudolf Dellinger, libretto by Zell and Genée (Hamburg, Carl-Schultze Theater, March 2; Cassel, Hoftheater, June 13; Nuremberg, Sommer Theater: Rotterdam, Deutsche Oper, Sept. 1; Munich, Sept. 14; Vienna Sept. 21), everywhere conducted by the composer. "Steffen-Langer," by Max Gabriel, libretto by Oscar Walther, after Birch-Pfeiffer's play of the same name (Magdeburg, Wilhelm-Theater, in March). "Der schöne Kaspar," by Joseph Bayer, libretto by Zell (Munich, Gärtnerplatz-Theater, April 6). "Der Fuchsmajor," by Sigmund Bachrich, libretto by Otto Weiss and F. Mamroth (Prague, Deutsches Theater, April 14). "Der Liebesbrunnen," romantic-comic operetta in three acts, by Paul Mestrozi, libretto after Scribe (Vienna, Fürst-Theater, April 21). "Der Amerikaner," by Gothov-Grünecke, libretto by Gustav von Moser (Görlitz, Wilhelm-Theater, June 19). "Der Adjutant," by Carl Weinberger, libretto by A. Ruprecht (Baden, near Vienna, Arena, July 13). "Die Spiritisten," by Julius Einödschofer, libretto by E. Weissberger (Innsbruck, Stadttheater, in July). "Der Herr Abbé," in two acts, by Alfred Zamara, libretto by Victor Léon and Josef Bracke (Munich, Gärtnerplatz-Theater, August 10). "Der Abenteurer," by Karl Stix, libretto by Adolf Philipp and Emil Sondermann (Hamburg, Carl-Schultze Theater, Sept. 14). "Das Narrentestament," by Ladislaus Unger, libretto by Ludwig Pick and M. Simon (Totis, Hungary, Count Eszterházy's private theater, Oct. 10). "Der Polengraf," by Louis Roth, libretto by Richard Genée and E. Fritzsche

(Berlin, Friedrich-Wilhelmstädtisches Theater, Oct. 24). "Gil Blas von Santillana," by Alfons Czibulka, libretto by F. Zell and M. West after the French of Le Sage (Hamburg Carl-Schultze Theater, Nov. 23), conducted by the composer. "Page Fritz," by Alfred Strasser and Max von Weinzierl, libretto by A. Landsberg and R. Genée (Prague, Deutsches Theater, Nov. 24). "Das Orakel," by Josef Hellmesberger, Jr., libretto by J. Schnitzer (Vienna, Theater an der Wien, Nov. 30). "La Vénus d'Arles," by Varney, libretto by Paul Ferrier and A. Liorat (Paris, Théâtre des Nouveautés, Jan. 30). "Le Retour d'Ulysse," by Raoul Pugno, libretto by Fabrice Carré (Paris, Bouffes-Parisiens, Feb. 1). "Les Beaupluminards dans l'embarras," by Léon Regniet, libretto by Victor Géo (Fontainebleau, in April). "Figarella," by Justin Clérice, libretto by Charles Grandmougin and Jules Méry (Paris, Théâtre Beaumarchais, in June). "La Fille de Cacolet," vaudeville by Chivot and Duru, music by Edmond Audran (Paris, Théâtre des Variétés, in July). "Monsieur Huchot," by Justin Clérice, libretto by Jacques Térésand (Paris, Bouffes-Parisiens, Oct. 3). "Le Mari de la Reine," in three acts, by André Messager, libretto by Blum and Touché (Paris, Bouffes-Parisiens, Dec. 18). "Gli Italiani in Africa," by Valverde (Casale, in January). "Una Spedizione in Africa," by Carmelo Preite (Peschiera, in January). "La Fornarina," by Paolo Maggi (Bologna, Teatro Brunetti). "La Mandragola," by Prince Teora, libretto by L. Guida (Naples, Teatro de' Fiorentini, in March). "Tramway," by Collaretto (Savona, Politeana). "Il Casino di campagna," by Domenico Quercetti (Osima, province of Ancona). "Li Amore del ciuchetto, in Romanesque dialect, by Cesare Pascucci (Rome, Teatro Manzoni, in April). "Le Discluse," by Marco Costa, libretto by Roberto Bracco (Naples, in April). "Un Dono fatale," by Zambelli, libretto by Nicolò Bacigalupo (Genoa, Athletic Club Cristoforo Colombo, in April), composed for and performed by children. "La Grotta di Merlino," by Ugo Bernazzi, who also wrote the libretto (Ravenna, Teatro Mariani, in May); the author is the mayor of that city. "Abukadabar," by Crescenzo Buongiorno (Naples, Teatro Fenice, in September). "Botton di rossa," by Mattio Forte (Naples, Teatro Fenice, in October). "Pipetto a fatto sega alla scuola," by Cesare Pascucci (Rome, Teatro Manzoni, in October). "I Grenadier," by Valente (Turin, Teatro Gerbino). "Il Viaggio di Stenterello nella luna," by Giulio Cacciali (Mantelupo, in October). "La Freccia dorata," by Bertaggia (Naples, Teatro Fenice, in November). "Il Marchese del Grillo," in Romanesque dialect, by Mascetti (Rome, Teatro Metastasio, in December). "Lia di Beaumont," by Salvatore Sciarra (Rome, Circolo Giornalistico, in December). "Certamen nacional," zarzuela, by Nieto, libretto by Perrin and Palacios (Barcelona, Eldorado, in January). "El Gorro frigio," by the same, libretto by Lamoureux and Lucio (ibid., in February). "Piccolino," by Augusto Machado (Lisbon, Teatro Trinidad, in February). "El Matin de Aranjuez," by Marqués (Madrid). "Olé, Sevilla," by Caballero, libretto by Jackson (Madrid). "El Arte d'enamorar," by Laymaria, libretto by Fola (Madrid, in December). "Guira ilustrada," by Jimenez,

libretto by Ruesca and Arango (*ibid.*). "John Smith," by Laur and Calcott (London, Prince of Wales Theatre, in March). "The Gondoliers, or the King of Barataria," by Arthur Sullivan, libretto by Gilbert (London, Savoy Theatre, Dec. 7). "Bismarck," by Berger and Jacobson (New York). "La Recluta," by Ulrick (Montevideo, Politeama, in November).

Ballets.—"Irene," by Casati, music by George Jacoby (London, Alhambra, in January). "The Army and the Navy," by the same authors (London, Alhambra, in April). "Astrée," by the same (*ibid.*). "Cleopatra," by Hervé (London, Empire Theatre). "A Dream of Happiness," by Kathi Lanner, music by Leopold von Wenzel (London, Empire Theatre, in December). "Die Jahreszeiten," in two acts and four tableaux, by E. Taubert and E. Graeb, music by Paul Hertel (Berlin, Royal Opera-House, Feb. 21); the change of the seasons is the leading idea of this production, which has no particular plot. The eye is attracted by a series of ingeniously arranged scenes, well-composed solo and *ensemble* dances, which were executed to perfection, and a magnificent mounting, while the music contains much that is pleasing and appropriate. As one of the happiest conceptions must be particularly mentioned the "Fliederwalzer," in the second tableau. "La Sulamite," by Anatole Leguin, music by Charles Haring (Bordeaux, Grand Théâtre, in February). "The Talisman," music by Riccardo Crigo (St. Petersburg, in February). "Echo," by Deggio and Théophile, music by De Montalent (Rouen, Théâtre des Arts, in March). "Der neue Romeo," in one act, scenarium by Dr. Steiger, music by the same and by Stojanovics (Pesth, Opera-House, in April). The entertaining subject is borrowed from a tale by Hoffmann, and most skillfully adapted. The melodious music found great favor. "Clio, or the Triumph of Venus," by Torres, music by Juan Goula (Barcelona, Liceo, in April). "Im Balletsaal," by Gyurian (Frankfort, June 13). "La

Tempête," in three acts and six tableaux, by Jules Barbier, after Shakespeare's "Tempest," music by Ambroise Thomas (Paris, Opéra, June 26), made on the whole a favorable impression, although the music is not written in the composer's best vein. The new decorations, finely painted, excited the greatest admiration, and are not likely to be surpassed even on that stage; the fantastic subject, most cleverly adapted by Barbier, offers great attractions to the eye; one of the finest scenic effects is produced at the close by the golden ship arising from the sea and moving onward to the foreground. "Ein Tanzfest in Versailles," *divertissement* by Frenzl (Munich, Hoftheater, June 28). "Annibale," by Pogna, music by Morenco (Genoa, Teatro Carlo Felice, in September). "Le Songe du Peintre," *divertissement* by Mme. Hennecart, music by Raoul Schubert (The Hague, Royal Theatre, in October). "Sonne und Erde," in one act, by Haszreiter and Gaul, music by Josef Bayer (Vienna, Hofopertheater, Nov. 19). "Drachenfels," music by Renzo Masutto (Genoa, Società Cristofora Colombo). Of the great spectacular pieces calculated for certain especially adapted stages, the following are noteworthy: "Germania," a great national show piece with ballet and choruses, in four acts and twelve tableaux, poem by Ernst Scherenberg (Berlin, Victoria Theater, Feb. 16); "Stanley in Africa," a picture of the times in eleven tableaux, by Alexander Moszkowski and R. Nathanson (Berlin, *ibid.*, Aug. 13); "Eglantine" (Les Pommes d'Or), spectacular operetta by Chivot, Duru, and Blondeau-Monreal, music by Edmond Audran (Hamburg, Centralhallen-Theater, March 2); "Riquet à la Houppe," by Ferrier and Clairville, music by Varney (Paris, Folies Dramatiques, in April); "Le Prince Soleil," in four acts and twenty-two tableaux, by H. Raymond and P. Burani, music by Léon Vasseur (Paris, Théâtre du Châtelet, in July); "The Royal Oak," by Augustus Harris and Hamilton (London, Drury Lane Theatre, Sept. 23).

N

NEBRASKA, a Western State, admitted to the Union in 1867; area, 76,855 square miles; population, according to the last decennial census (1880), 452,402; capital, Lincoln.

Government.—The following were the State officers during the year: Governor, John M. Thayer, Republican; Lieutenant-Governor, George D. Meiklejohn; Secretary of State, George L. Laws, who resigned in October to accept a nomination to Congress in the Second District, and was succeeded by B. R. Cowdery; Auditor of Public Accounts, Thomas H. Benton; Treasurer, John E. Hill; Attorney-General, William Leese; Superintendent of Public Instruction, George B. Lane; Commissioner of Public Lands and Buildings, J. Steen; Chief Justice of the Supreme Court, M. B. Reese; Associate Justices, Samuel Maxwell and Amasa Cobb.

Finances.—There has been no change in the State debt for several years, the amount being \$449,267.35, consisting of twenty-year 8-per-cent. bonds maturing in 1897. Nearly three fourths of these bonds are held in the permanent school

fund. The assessed valuation of property in the State in 1889 was \$182,763,528.41, against \$176,012,820.45 in 1888. The total assessment of railroad lines and equipment was \$29,674,879.21; of other railroad property, \$1,422,398; and of telegraph lines, \$181,555.20. The rate of State taxation for 1889 was about 6.52 mills, producing a total of \$1,192,008.27, as assessed by the Board of Equalization.

Legislative Session.—The twenty-first session of the State Legislature began on Jan. 1, and adjourned on March 30. On Jan. 16, United States Senator Charles F. Manderson, who was the unanimous choice of the Republican members, was re-elected by the following vote: Senate—Manderson 27, John A. McShane (the Democratic nominee) 6; House—Manderson 75, McShane 21, J. Sterling Morton 1. The most important act of the session provides for the submission of two constitutional amendments to the people at the November election in 1890, one being a prohibitory amendment, the other providing that the manufacture and sale of intoxicating

liquor shall be licensed and regulated by law. Two other amendments were also proposed—one raising the salary of judges of the Supreme Court to \$3,500, and of district judges to \$3,000; the other increasing the Supreme Court to five judges, and shortening their term to five years. A valued-policy law was passed, declaring that, in case of total loss, the amount of fire insurance written in any policy shall be conclusively taken to be the true loss and measure of damages.

An act for the suppression of "trusts" renders any person, partnership, or corporation connected with any "trust," or violating the provisions of the act, liable to any person, partnership, or corporation injured thereby in the full amount of damages sustained. Any person, partnership, or corporation violating the act, or any officer or person connected with such partnership or corporation, is liable to a fine not exceeding \$1,000, or imprisonment not over six months, or both. Any offending corporation shall forfeit its charter, and partnerships or unincorporated companies shall be forbidden to do business in their former name. Each day of the continuance of the "trust" shall be a separate offense.

An irrigation act defines at length the rights of persons to construct ditches and appropriate running water for irrigation.

Provision was made for the first time to tax the property of sleeping-car and dining-car companies in the State.

An Australian ballot bill passed the House, but failed to become a law. After the adjournment, the Governor vetoed a bill that repealed the live-stock-agency law of 1887, and substituted therefor a similar act. The result of this action was that the live-stock commission and the State veterinarian still held office under the law of 1887, but there was no appropriation for their work, the appropriation clause having been incorporated in the vetoed bill.

Other acts of the session were as follow :

Revising the laws governing cities.

To punish city and village officers who become interested in contracts with the city or village, or who furnish any material to any person contracting with the city or village.

Giving to the board of fire and police commissioners the power to license the sale and disposal of intoxicating, malt, spirituous, mixed, or fermenting liquors in cities of the metropolitan class.

To require all trains on railroads in Nebraska to come to full stop at crossings of other railroads.

To prevent persons from unlawfully using the insignia of the Loyal Legion of the United States.

Requiring insurance companies organized under laws of other States to pay a duty for support of fire departments in the city or village where fire insurance is effected.

To secure the payment of mechanics' and laborers' wages on all public buildings where the general mechanics' lien law does not apply.

Giving the Governor power to pardon, on each Fourth of July, two convicts who have served ten years or more in the State Penitentiary and who are entitled to the benefits of the good-time act.

Revising the banking law.

To enable foreign corporations to incorporate in Nebraska.

Changing the time for the meeting of presidential electors to the Saturday preceding the second Monday of January succeeding the election.

Changing the law of descent, and regulating the distribution of personal estate.

Offering a bounty of one cent a pound on all sugar manufactured in the State from beets, sorghum, or other plants grown in the State.

Authorizing the levy of a county tax not exceeding three tenths of a mill, the proceeds to be used in each county for the relief and funeral expenses of indigent Union soldiers and sailors and the indigent wives, widows, and minor children of such, to be distributed under the direction of county soldiers' relief commissions.

Appropriating \$5,000 to improve the Capitol grounds.

Appointing the first Monday of September in each year as a legal holiday, "Labor Day."

Appropriating \$50,000 for buildings and improvements at the State Industrial School at Kearney; also \$81,000 for erecting and furnishing a south wing at the State Industrial Home at Milford.

Prohibiting the assignment of claims by a creditor against a laborer, or the institution of suits designed to evade the laws of the State concerning exemption of wages.

The total appropriations of the session amounted to \$2,380,328.88, of which \$316,240 was for buildings and improvements at State institutions. The appropriations for the State library and for expenses of the judiciary amount to \$222,819.70. The executive departments receive \$189,284, and the miscellaneous appropriations reach \$68,497.04.

Education.—The school census of 1889 showed 316,805 children of school age in the State, an increase of 18,799 in one year. The amount of State school fund apportioned to the counties for the support of schools was \$317,619.26, or about \$1 per census child.

State Institutions.—On Nov. 30 the number of convicts in the Penitentiary at Lincoln was 379, an increase of 41 over Nov. 30, 1888; and there were in the Industrial School at Kearney 249 boys and girls. At the Lincoln Insane Asylum there were 309 inmates. The Soldiers' and Sailors' Home contained 165 persons on Dec. 31, that being all the institution is able to care for.

Prohibition.—Immediately upon the passage of the bill submitting to the people a prohibitory constitutional amendment, the friends of prohibition began to organize for the campaign, although the election was still eighteen months distant. A call was issued for a mass convention of all friends of prohibition in the State, to be held at Lincoln on June 5. The object of the convention was to take action "for perfecting a State organization and such other organizations as may seem best, so as to thoroughly organize in the State for the overthrow of the saloon and the liquor traffic in Nebraska." About 400 delegates responded, and the convention organized a non-partisan prohibitory amendment league. Provision was made for the organization of auxiliary leagues in each county and in each school district and in precinct of cities. During the remainder of the year the leaders of the movement were active in the formation of these local leagues. Late in the year a convention was called at Omaha for the purpose of uniting the States of Kansas, Iowa, North Dakota, South Dakota, and Nebraska in a central prohibition organization. The convention met on Dec. 18, with 250 delegates, and a permanent organization was effected.

Political.—A Justice of the Supreme Court and two regents of the State University were to

be chosen at the November election. A Republican State convention met at Hastings on Oct. 8 and nominated T. L. Norval for Justice, and C. H. Morrill and J. L. H. Knight for Regents. Norval was selected on the first ballot over Chief-Justice M. B. Reese, who sought a renomination. The Democratic State Convention met at Omaha on Oct. 16, and nominated by acclamation J. H. Ames for Justice and W. S. McKinney and E. W. Hess for Regents. The nominees of the Prohibition party, which met in convention at Lincoln on Aug. 21, were T. P. Wigton for Justice and Jennie F. Holmes and L. B. Palmer for Regents. The Union Labor party supported the Democratic candidate for Justice, and nominated William Blakley and O. M. Kern for Regents. The vote for Justice at the November election was, Norval 91,470, Ames 72,442, Wigton 5,821; for Regents the vote stood, Morrill 93,317, Knight 93,356, McKinney 68,194, Hess 68,364, Holmes 5,587, Palmer 5,416, Blakley 2,308, Kern 2,959.

The death of Congressman James Laird, of the Second District, on Aug. 17, rendered necessary a special election, which was held at the time of the regular November election. A Republican convention nominated ex-Secretary of State G. L. Laws on the twenty-second ballot. The Democrats nominated C. D. Casper, and the Prohibitionists C. E. Bentley. Laws received 27,775 votes, Casper 21,123, Bentley 1,816.

NETHERLANDS, a monarchy in western Europe. The Constitution of 1815 was modified in 1848 and in 1887, when the right of suffrage was extended by reducing the cense, there being now one elector in about fifteen persons.

The throne was hereditary in the male descendants of the house of Nassau-Orange till 1886, when the Princess Willemine, born Aug. 31, 1880, was declared the next heir to her father. King Willem III, the reigning sovereign, was born Feb. 19, 1817. In January, 1889, he was so weak that his death seemed near. He partly recovered his strength, but the chronic disease with which he is afflicted reduced his vitality again to such a degree that on March 26 the Council of State decided to call together the States-General to apply for authority to act provisionally as regents until a regular regency should be appointed in the way prescribed by the Constitution within thirty days by the Chambers. The Chambers met on April 2, and conferred the necessary powers on the Council of Ministers, which formally assumed the direction of the Government on April 3. A great improvement in the King's health took place, and on April 29 the Council of State notified the States-General that the exigency had ceased to exist.

The Council of Ministers, constituted on April 20, 1888, is composed of the following members: President and Minister of the Interior, Baron Mackay; Minister of Foreign Affairs, C. Hartsen; Minister of Finance, K. A. Godin de Beaufort; Minister of Justice, G. L. M. K. Ruys van Beerenbroek; Minister of the Colonies, L. W. C. Keuchenius; Minister of Marine, Capt. H. Dyserinck; Minister of War, Col. J. W. Bergansius; Minister of Public Works and Commerce, J. P. Havelaar.

Area and Population.—The area of the kingdom is 33,000 square kilometres, or 12,648 square miles. The population at the end of

1888 was computed to be 4,505,932, comprising 2,232,183 males and 2,273,749 females. The number of marriages in 1888 was 30,862; the number of births, 158,865; of deaths, 99,612; surplus of births, 59,853. The number of emigrants in 1887 was 19,192.

Finances.—The budget for 1889 makes the total receipts 120,852,965 guilders. The total expenditures were estimated at 133,596,613 guilders. The capital of the debt at the end of 1889 was 1,067,825,750 guilders, including 15,000,000 guilders of paper currency. In the estimates for 1890 there is a deficit of 5,000,000 guilders in the extraordinary budget, making the total of the deficits in the extraordinary estimates since 1885, incurred mainly for public works, 20,000,000 guilders, while the ordinary budget has exhibited a surplus for several years. In framing his estimates the Minister of Finance has not taken account of the progressive increase of revenue since 1885, and has usually overestimated the expenditure. Therefore the deficits have invariably been less than estimated.

Education.—By the primary instruction law of 1857, modified and extended by the law of Aug. 18, 1878, a system of popular education was established under which illiteracy has disappeared rapidly. Among the rural population one fifth of the adult men and one fourth of the women are still unable to read or write. Under the provisions of the act of 1878 the state defrays 30 per cent. and the communes 70 per cent. of the cost of the schools, but this proportion was changed by the act of July 11, 1884, which restricted the Government expenditure. In 1886 there were 2,932 public schools, having 12,605 teachers, and 1,192 private schools, with 4,644 teachers. Of the private elementary schools 1,127 received no subsidies from the state. The number of pupils in the public schools was 444,678 and in the private schools 171,993. The Government contribution to elementary education in 1886 was 3,974,640 guilders; that of the communes, 7,477,488 guilders.

The majority behind the present ministry is composed of opponents of secular education, both Catholic and Protestant. The Government in April, 1889, brought in a bill to amend the law of 1878. This bill proposed to grant 250 guilders a year to teachers of private schools having from 25 to 90 pupils, 300 guilders when the number of pupils exceeds 90, 350 guilders when it is 200, and 400 guilders for 400 pupils and over. For schools of more than 40 pupils an assistant teacher must be employed, and additional assistants for every 55 pupils, for each assistant an addition of at least 150 guilders being made to the state grant. No school can have more than 600 pupils without leave of the ministry. In order to earn the Government grant the teachers must pass the examinations required for the public schools, must be over twenty-three years of age, must present the same credentials as to morals and competency, and must have their schools open more than six months in the year. The clerical and evangelical friends of religious schools were not satisfied with the bill, but the Constitution stood in the way of such a measure as they desired. The bill was referred to a committee, and after prolonged discussion the Government project, with

some modifications, was adopted by the Chambers in December.

The Army.—The permanent army in 1889 on the war footing numbered 2,342 officers and 63,391 men. The active militia had on the rolls 40,902 men, and the resting or sedentary militia 75,275 men.

The army of the East Indies is recruited solely by voluntary enlistments of Europeans or natives. The number of officers on Jan. 1, 1888, was 1,402; of soldiers, 32,290. The army was composed of 14,607 Europeans and 17,583 natives. There was besides the Indian militia, which had a strength of 8,905 men, of whom 3,546 were Europeans. The troops of the regular army of the Netherlands can not be sent on colonial service. By permission of their commander soldiers can enlist in the army of the Dutch East Indies, the European part of which is composed of such recruits and of men from various countries who are attracted by bounties and other inducements. The artillery is composed of European gunners, with native riders, while the cavalry and infantry are mixed, consisting of Dutchmen, Germans, and other Europeans, Christianized natives of India, half-castes, who are treated on a footing of equality with Europeans, negroes, and native companies, composed of pagan and Mohammedan natives of Netherlands India. All the commissioned officers are Europeans, with the exception of certain natives of high rank, whose commissions are honorary.

The Navy.—The fleet, in July, 1889, comprised 6 turret ships, 10 monitors, 5 vessels for river defense, 25 cruisers, 8 side-wheel steamers, 31 gunboats, 32 torpedo boats, and 27 other vessels. The crews on Jan. 1, 1889, numbered 6,956 men, exclusive of 2,909 marines and 943 native sailors in the royal service in the East Indies. The East Indian fleet at the beginning of 1888, consisted of 26 vessels of the royal navy and the colonial fleet of 88 vessels, and the crews of 2,711 Europeans and 1,943 natives.

Commerce.—The total value of the special imports in 1888 was 1,272,100,000 guilders, against 1,137,000,000 guilders in 1887; the value of the domestic exports 1,114,800,000 guilders, against 991,600,000 guilders. The imports of merchandise in 1888 amounted to 1,262,100,000 guilders, and the exports to 1,096,900,000 guilders. Of articles of food and consumption the imports amounted to 316,400,000 guilders and the exports to 260,600,000 guilders. The imports of cereals were 234,100,000 guilders; exports, 25,100,000 guilders; imports of spirituous beverages, 6,600,000 guilders; exports, 9,200,000 guilders; imports of colonial produce, 31,900,000 guilders; exports of sugar, etc., 29,900,000 guilders; imports of tobacco, 7,900,000 guilders; exports, 3,900,000 guilders; imports of seeds and fruits, 31,800,000 guilders; exports, 30,200,000 guilders; imports of animals and meat products, 4,100,000 guilders; exports, 62,300,000 guilders. The total imports of raw materials amounted to 305,000,000 guilders, and the total exports to 204,900,000 guilders. The total imports of manufactured objects were valued at 89,300,000 guilders, and the exports at 102,600,000 guilders. The total imports of miscellaneous products were 550,400,000 guilders, and the exports 528,800,000 guilders. The im-

ports of specie and bullion were 10,000,000 guilders, and the exports 17,900,000 guilders. The chief among the importing countries were: Germany, to the amount of 317,700,000 guilders in 1888, against 301,500,000 guilders in 1887; Great Britain, to the amount of 341,400,000 guilders, against 246,300,000 guilders; Belgium, to the amount of 157,300,000 guilders, against 160,500,000 guilders; the Dutch East Indies, to the amount of 118,200,000 guilders, against 114,200,000 guilders; Russia, to the amount of 126,200,000 guilders, against 95,000,000 guilders; and the United States, to the amount of 62,200,000 guilders, against 79,100,000 guilders in the preceding year. The exports to the United States amounted in 1888 to 38,400,000 guilders, and in the year before to 49,100,000 guilders.

Navigation.—The number of sailing vessels entered at the ports of Holland in 1888 was 2,064, of 1,566,352 tons, of which 1,822, of 1,515,051 tons, were with cargoes. The total number cleared was 2,104, of 1,638,019 tons, of which 1,325, of 765,932 tons, were with cargoes. The number of steam vessels entered was 7,012, of 12,889,752 tons, of which 6,526, of 12,357,610 tons, were laden; the number cleared was 6,914, of 12,775,649 tons, of which 4,720, of 7,701,643 tons, were with cargoes. The merchant navy on Jan. 1, 1889, consisted of 502 sailing vessels of the aggregate burden of 396,676 metric tons, and 107 steam vessels, of 297,851 tons; together, 609 vessels, of 694,527 tons.

Railroads.—On Dec. 31, 1889, there were 2,602 kilometres of railroad open to traffic. In 1887 the length was 2,551 kilometres, of which the state owned 1,312 kilometres, and 1,239 kilometres belonged to companies. The capital in railroads up to 1886 was 218,733,736 guilders.

The Post-Office and Telegraphs.—The number of private internal letters sent in 1888 was 50,640,696; foreign letters, 15,158,746; postal cards, 27,127,733; newspapers, 55,907,952. The receipts in 1888 amounted to 6,023,578 guilders, and the expenses to 4,579,198 guilders.

The State telegraph lines in the beginning of 1889 had a total length of 4,982 kilometres with 17,514 kilometres of wire. The number of dispatches in 1888 was 4,093,777, of which 2,070,283 were internal, 1,989,391 international, and 34,103 fiscal. The receipts were 1,267,528 guilders; the ordinary expenditure, 1,474,997 guilders; extraordinary expenditures, 66,770 guilders.

Luxemburg.—The Grand Duchy of Luxemburg was given to the house of Orange in 1815 as a compensation for losses of territory in Germany. It has since been connected only by a personal union with the Netherlands. A part of the grand duchy was annexed to Belgium in 1830. The area at present is 2,587 square kilometres. The country is picturesque, and attracts tourists in large numbers. The Catholic religion predominates, there being 211,077 Catholics, against 1,141 Protestants and 866 Jews. The population is almost entirely of the German race, and German is the language of the people and of the elementary schools. French is the language of legislation and of the higher branches of the administration, yet the equality of the two languages is established by law.

The connection with the crown of the Netherlands will cease on the death of the present king,

as the law of succession excludes female heirs. The deposed Duke of Nassau, whose duchy was annexed to Prussia in 1866, is the acknowledged successor of King Willem. Duke Adolph, born July 24, 1817, is the representative of the elder line of Nassau-Orange. When King Willem was declared incapable of ruling by the Dutch Council of State, Duke Adolph went to Luxemburg on the invitation of the ministry to assume the duties of Regent. His message, declaring that he was willing to observe the Constitution and the family agreement, was read in the Luxemburg Chamber on April 8, and on April 11 he took the oath and entered on his duties as Regent in accordance with the provision in the Constitution of October, 1868. When King Willem recovered his health sufficiently to resume his royal functions, it was supposed that he would not disturb the Regent, but on May 2 he wrote to Duke Adolph announcing his intention to resume the Government in both countries on the same day. The duke accordingly laid down the regency, and returned to Germany on May 3.

Factory Legislation.—A law to restrict the employment of children, youths, and women in factories was passed by the Chamber on April 12. It does not apply to agricultural and horticultural laborers, or to those employed in forests. Children who have not passed their twelfth year must not be employed in factory work. Boys under the age of sixteen and women must not, without the dispensation of the authorities, begin work earlier than five o'clock in the morning nor continue at it later than seven o'clock in the evening, nor work more than eleven hours daily, and must have an hour of rest in the middle of the day. It is forbidden to employ such people on Sundays, unless they belong to professions observing another day of rest. After childbirth women must not return to factory work for four weeks.

Colonies.—The native population of Java and Madura in 1886 was 21,716,177; and of the other islands of Netherlands India, including Sumatra, Riouw, Banea, Billiton, a part of Borneo, Celebes, the Moluccas, a part of New Guinea, Timor, and Bali, the native population is approximately 8,400,000. The area of Java and Madura is 131,753 square kilometres, and that of the other possessions about 1,728,000 square kilometres. The European population in 1886 numbered 50,792 civilians, of whom 40,347 resided in Java and Madura. There were 396,010 Chinese, more than 60 per cent. of them living in Java and Madura, 18,826 Arabs, and 9,083 Indians. The capital, Batavia, has 100,485 inhabitants. Other important towns in Java are Samarang, with 74,141 inhabitants, and Soerabaya, with 128,990. The budget of the East Indies for 1889 makes the total receipts 127,792,204 guilders, and the expenditures 136,590,867 guilders, leaving a deficit of 8,798,663 guilders. The receipts in Holland from the sale of coffee and tin, and from other sources are taken as 29,189,977 guilders, and the expenses in Holland as 22,889,779 guilders. Of the total receipts in Holland and India 30,021,782 guilders represent the sales of coffee; 356,400 guilders, cinchona; 5,624,675 guilders, tin; 20,411,000 guilders, farm of opium; 9,663,000 guilders, customs; 17,615,000 guilders, tithes or land revenue; 7,547,000 guilders, salt duty;

1,389,000 guilders, postal and telegraph revenue; 6,259,000 guilders, receipts from railroads; and 28,905,347 guilders, receipts from various sources. The budget estimates for 1890 make the total expenditures 140,500,000 guilders, or 12,400,000 guilders in excess of the estimated receipts. The imports into East India in 1886 amounted to 126,737,000 guilders, against 138,868,000 guilders in 1885. The exports in 1886 amounted to 195,883,000 guilders, against 188,072,000 guilders. The exports of coffee by the Government in 1886 were 21,042,000 guilders in value; the exports by individuals, 22,436,000 guilders; the total exports were 43,478,000 guilders, against 29,709,000 guilders in 1885; the exports of sugar amounted to 66,999,000 guilders, a decline of 17,080,000 guilders; the exports of tin were 7,977,000 guilders, as compared with 7,167,000 guilders; the exports of indigo were 3,775,000 guilders, or about the same in value as in the preceding year; the exports of tea were valued at 2,350,000 guilders, showing an increase of 40 per cent.; the exports of tobacco were 20,211,000 guilders, showing a slight falling off; the exports of rice increased from 2,923,000 to 6,376,000 guilders, and those of gambier showed an increase of more than 50 per cent., and pepper a small increase, while in rattan, gum, gutta-percha, and cloves and nutmegs there was a large falling off, and one of considerable extent in the export of skins. The imports into the United States of tobacco grown in the Dutch East Indian colonies amounts to an annual value of between \$3,000,000 and \$4,000,000. In Java tobacco is generally grown by small cultivators for their own use. The valuable qualities are raised with European capital and Chinese labor on the eastern coast of Sumatra. The laborers are hired on three-year contracts at Penang and Singapore. The volcanic soil of the Deli district is most favorable for the culture. The industry was established in 1870, but did not assume important dimensions till after 1882. The area devoted to the cultivation of tobacco in Sumatra in 1888 was about 720,000. The crop of that year was about 180,000 bales, exceeding that of 1887 by 30,000 bales of 80 kilogrammes each. The cultivation of the Sumatra leaf has been undertaken on a large scale on the fertile forest lands lying about the northern bays and eastern coasts of British North Borneo, and concessions of suitable lands have been obtained in western Dutch Borneo. In 1889 an area of about 450,000 acres had been taken up by planters of tobacco, mostly Dutchmen, in North Borneo. The Sumatra tobacco is desired as wrappers for cigars, being oily, smooth, and silky in appearance and neutral in aroma. One pound covers 500 cigars. The cost of production, by good management, does not exceed three fourths guilder a pound, while the auction price at Amsterdam has for several years averaged more than twice as much.

The number of vessels entered at the colonial ports during 1886 was 10,414, of 4,993,398 tons, while 10,608, of 4,692,699 tons were cleared. The colonial merchant navy consisted of 1,631 vessels, of 252,690 tons. There were 1,187 kilometres of railroads in operation in 1889 and 205 kilometres more were building in Java, and in Sumatra there were 76 kilometres completed and 169 kilometres under way. The Netherlands In-

dia Railroad Company took in 3,036,782 guilders in 1887, with expenses amounting to 1,381,214 guilders, and the state railroads exhibited receipts amounting to 4,397,636 guilders with 2,382,690 guilders of expenses. The length of the state telegraph lines in 1887 was 6,556 kilometres, of which 3,868 kilometres were in Java and 2,629 in Sumatra. The total length of wires was 8,704 kilometres.

In connection with the revolutionary conspiracy among the natives of Bantam that was discovered in 1888, there were 204 persons tried, of whom 94 were acquitted, 107 condemned to death, and 3 sentenced to hard labor. Europeans, as well as natives, protested against the execution of the wholesale death sentences, and the Government commuted the punishment.

The military authorities have made no progress in the subjugation of Atcheen. The *berri-berri* and other diseases render operations often impossible. Prof. Pekelharings diagnosis and preventive and curative treatment have had no favorable results, and a commission to study the disease that met in Holland disagreed at the beginning of the inquiry. A new treatment by a military surgeon, Dr. Fiebig, is being tested under the auspices of the Government. Entire battalions were rendered useless, not only in Atcheen, but in Soerabaya and other garrison towns. The cholera has become endemic in Soerabaya and other places on the coast. The rebels in Atcheen attacked outposts and patrols, and destroyed bridges, railroads, and telegraphs. The Atcheenese were abundantly supplied with firearms by English traders in Singapore, in spite of the blockade of the coast. In December a cruiser captured a vessel off the coast laden with breech-loading rifles, revolvers, cartridges, and kegs of powder. In May, 1889, the garrison at Edi, on the coast, was attacked by a hostile force, and it was only when the Governor had sent considerable re-enforcements that the Atcheenese were driven off after two severe engagements in which the Dutch lost 28 men killed and wounded and of the enemy 160 were killed. On July 25, 1889, the Dutch sustained a severe reverse. A body of Atcheenese attacked the Kottapohama fort with artillery and compelled the garrison to make a sortie on the following day. A stockade was taken, but the troops lost 21 officers and men killed, and 81 wounded. The Government has been desirous of evacuating the country, retaining only one or two posts on the coast, and the young sultan and his party would conclude peace on such terms.

The protectorate declared by the British Government over the territory of the British North Borneo Company and the native states of Sarawak and Brunei includes a strip of country on the east coast that is claimed as a part of its possessions in Borneo by the Government of the Netherlands, which also has pretensions to a suzerainty over the Sultan of Brunei and the Sultan of Sulu. The British Government has been invited to terminate the existing uncertainty by a discussion and adjustment of the differences.

The colony of Surinam or, Dutch Guiana, has an extent of 119,321 square kilometres, with a sedentary population of 57,141, of whom 23,646 are Moravian brothers, 8,938 Catholics, 6,608 Dutch Reformed, 3,007 Lutherans, 213 of other

Christian sects, 1,409 Israelites, 1,629 Mohammedans, 4,731 Hindus, and 114 Buddhists. The capital is Paramaribo, with 27,553 inhabitants. The number of births in 1887 was 1,909; of deaths, 1,503. The receipts of the colonial treasury in 1889 were estimated at 1,426,913 guilders, and the expenditures at 1,628,541 guilders.

The Dutch Antilles, or colony of Curaçao, comprising islands of Curaçao, Bonaire, Aruba, a part of St. Martin, St. Eustace, and Saba, have an aggregate area of 1,130 square kilometres and a population of 45,954 individuals. The births in 1887 numbered 1,822 and the deaths 804. The revenue for 1889 is set down as 702,095 guilders. During almost the entire year 1888 and the first half of that of 1889 a continued drought in Curaçao caused a loss of crops and of live stock and a partial famine among the people.

NEVADA, a Pacific Coast State, admitted to the Union in 1864; area, 110,700 square miles; population, according to the last decennial census (1880), 62,266; capital, Carson City.

Government.—The following were the State officers during the year: Governor, Christopher C. Stevenson, Republican; Lieutenant-Governor, Henry C. Davis, who died on Aug. 22 and was succeeded early in September by S. W. Chubbuck, by appointment of the Governor. Lieutenant-Governor Chubbuck resigned late in November, and the Governor appointed Frank Bell as his successor. Secretary of State, John M. Dormer; Treasurer, George Tuflly; Comptroller, J. F. Hallock; Attorney-General, John F. Alexander; Superintendent of Public Instruction, W. C. Dovey; Chief Justice of the Supreme Court, Thomas P. Hawley; Associate Justices, Charles H. Belknap and M. A. Murphy.

Finances.—The report of the Treasurer for 1888 shows the following figures: Balance on Jan. 1 in all funds, \$478,382.09; receipts during the year, \$496,519.54; expenditures, \$323,741.69; balance on Jan. 1, 1889, \$651,159.94. In the general fund alone there was a balance on Jan. 1, 1888, of \$146,180.92; the receipts for the year were \$221,622.09; the payments were \$145,133.98; leaving a balance on Jan. 1, 1889, of \$212,669.03. The receipts of this fund included \$196,732.61 from the counties for State taxes, and \$19,681.92 from the United States Government in payment of Indian war claims. The latter sum is much less than the original claim preferred by the State.

The State debt at the beginning of 1889 consisted of an irredeemable 5-per-cent. bond for \$380,000 held by the State School fund, of 4-per-cent. bonds amounting to \$119,000 held by the same fund, and of 4-per-cent. bonds to the value of \$15,000 held by the State University funds, a total of \$514,000. The Legislature at its session this year authorized additional loans from the School and University funds, which will increase the debt by \$138,000, if the entire amount authorized is taken.

The assessed valuation of the State, exclusive of mining property, was about \$30,000,000 for the year. The tax rate was 90 cents on \$100.

Legislative Session.—The fourteenth legislative session began on Jan. 7, and ended on March 7. Two important acts were passed regulating irrigation. Heretofore, mining has been

the absorbing industry, and agriculture has been almost neglected; but of late it has become evident that the prosperity of the State will depend largely upon the success of its farms. In the greater part of the State farming is only possible by means of irrigation. (See IRRIGATION.) This has already been attempted, to a limited extent, but the lack of a general law regulating water rights, providing for the settlement of disputes regarding such rights, and permitting organization in order to secure irrigation for large tracts, has hindered the development of the system. The acts of this year are designed to remedy such defects. One of these divides the State into seven irrigation districts, and provides for the appointment of a water commissioner for each district, who shall divide and apportion the water of the lakes and streams among the ditches leading from them according to the legal rights of each, and who shall see that no water is wasted. Disputes regarding priority of rights shall be settled by the district courts, from which an appeal may be taken to the Supreme Court. The water in all natural streams and lakes, not heretofore appropriated, is declared to be the property of the public and its use a public use. Persons may construct and maintain storage reservoirs for water under the direction of the commissioner.

The other act creates a State Board of Reclamation Commissioners, which shall have charge of the development of the public lands of the State and which is specially authorized to expend not over \$100,000, in constructing a large ditch or canal from any one of the rivers of the State, with a view of developing the adjacent arid lands. The rate at which the State will let the right to take water from such ditch is fixed. The board is also authorized to divide the State into districts, and to appoint a superintendent for each, who shall have charge of building and maintaining irrigation works therein. The State board may, on petition, submit to any district the question whether bonds of the district shall be issued for reclamation purposes, and in case of a favorable decision, it shall issue and dispose of such bonds, shall have control of the proceeds, and shall direct the manner of its expenditure in the district upon ditches, canals or other works of irrigation. In order to raise the \$100,000, the State is empowered to borrow that sum from its School fund, replacing it by 4-per-cent. State bonds to that amount. An annual tax of two cents on each \$100, shall be levied to pay the interest and the principal of these bonds.

To provide funds for the support of the State University, a loan of \$38,000 from the University fund, (90,000-acre grant) was authorized to be replaced by a four-per-cent. bond for that amount payable within ten years.

Other acts of the session were as follow:

Appropriating \$15,000 and \$4,687.15 to meet the expenses of the special constitutional election.

To prohibit the deposit of sawdust in the lakes and streams of the State, or in any place where it may be carried into them.

Defining the term "reasonable doubt," and requiring that no other definition of that term shall be given to jurors by the courts of the State.

Repealing the bounty law of 1887.

Repealing the act of 1887 for the preservation of fish in Humboldt river.

Assenting to the act of Congress establishing agricultural experiment stations.

Requiring insurance companies to render annual reports to the State Comptroller.

Requiring foreign corporations owning property or doing business in the State to keep agents in the State on whom legal process may be served.

Prohibiting the diversion and waste of waters in the State during the irrigating season.

Defining actual residence, within the meaning of the Constitution.

Closing saloons and gaming houses between 12 o'clock at night and 6 o'clock the next morning.

Prohibiting the shearing of sheep within one-half mile of any residence in any city or town.

Providing that there shall be no more than 400 voters in any election precinct.

To punish the owners or agents of water ditches, flumes, or artificial water courses for allowing the water to run upon any public road.

Raising the age of consent to fourteen years.

To prevent giving false pedigrees of horses kept for breeding.

To prevent trespass by live stock on real estate.

Education.—At the beginning of this year, the State School fund contained \$749,000 in State and national bonds and a balance of \$303,760.12 in cash. The University fund (90,000-acre grant) contained \$43,000 in bonds and \$44,513.64 in cash, and the State University fund \$22,000 in bonds and \$11,259.26 in cash. The income of these funds is available for educational purposes. The amount expended by the State for public schools in 1888 was \$61,596.85.

Charities.—The report of the State Insane Asylum for 1888 shows that there were 161 inmates at the beginning of the year; 57 were received and 51 discharged during the year, leaving 167 remaining on Jan. 1, 1889. The amount paid by the State for indigent insane during 1888 was \$34,306.76. The State Orphans' Home cares for a large number of orphan and dependent children. The cost of its support in 1888 was \$11,677.89.

Constitutional Amendments.—By reason of the decision of the State Supreme Court, rendered in December, 1888, it became necessary to submit again to the people the eleven constitutional amendments voted upon in the November previous, that election having been of no effect. Under the act of 1887 these amendments could not again reach the people till the November election in 1890; but the Legislature early in its session this year, in order to avoid such delay, passed an act providing that all constitutional amendments then ready for submission to the people should be voted upon at a special election to be held on Feb. 11. Before the passage of this act the Legislature had adopted for the second time three of the four amendments proposed for the first time by the Legislature of 1887, namely, the amendments authorizing the establishment of lotteries, permitting the consolidation of county officers, and making women eligible for school offices. There were therefore fourteen amendments ready for submission to the people at the February election. The greatest public interest centered in the decision upon the lottery amendment, which was defeated by a vote of 3,671 to 4,523. The other amendments defeated were those abolishing the office of Lieutenant-Governor, providing for the care of infirm and indigent citizens by the State instead of by

the counties, and shortening the time required to amend the Constitution. The amendments adopted, with the vote thereon, are as follow: Postponing the meeting of the Legislature to the third Monday of January—yeas, 4,709; nays, 3,229. Prohibiting special laws in certain cases—yeas, 4,215; nays, 3,593. Authorizing the consolidation of county offices—yeas, 4,800; nays, 3,114. Giving women the right to hold school offices—yeas, 4,441; nays, 3,478. Providing for the investment of school funds—yeas, 5,627; nays, 2,575. Permitting an increase of the school tax to two mills—yeas, 4,691; nays, 3,359. It is believed that the election was conducted with entire legality, and that the amendments adopted have become beyond dispute a part of the State Constitution. The Legislature also passed an act this year submitting to the people in November, 1890, the question whether a convention shall be called to revise the entire State Constitution. A similar proposition was defeated at the last November election.

The Western Boundary.—A movement was begun by the Legislature this year for securing from California the small portion of the latter State lying between the summit of the Sierra Nevada mountains and the present Nevada boundary. The territory includes the counties of Inyo, Mono, and Alpine, and small portions of several others, and contains not over 1,500 voters. The people of this locality are favorable to the change, being naturally linked to Nevada by situation and by trade. A committee appointed by the Legislature visited Sacramento and laid the matter before the California Legislature, but were unsuccessful in securing any action from that body. On the contrary, it passed a bill directing the Surveyor-General to resurvey the boundary between the States, the result of which was to establish the fact that the former boundary had been incorrectly fixed, and that California was entitled to a strip over 200 miles long and about three fourths of a mile wide, crossing Lake Tahoe, and extending south to Colorado river. Steps were taken by California to submit the matter to Congress and to secure a readjustment of the line according to the new survey.

NEW BRUNSWICK. The only change in the government during the year was the resignation of the Hon. Robert J. Ritchie, Solicitor-General, and the appointment of the Hon. William Pugsley in his stead.

Legislation.—The most important general act passed by the Provincial Legislature was the Franchise act, which makes several important changes in the law. By it the property qualification of candidates for the local legislature is abolished, the sole requisite being that the candidate shall be a male, twenty-one years of age, and a British subject. Ministers of the gospel, priests, ecclesiastics, Senators of the Dominion, and members of the Privy Council of Canada, being members of the House of Commons, are ineligible for election to the local legislature; and if a member-elect becomes a candidate for the House of Commons, or sits or votes in the House of Commons, his seat in the local house thereby becomes vacant. Officials under the Government are disqualified from becoming candidates for the local legislatures. The fran-

chise established by the statute is practically resident manhood suffrage, residence of twelve months in a district being necessary to qualify. A man possessing real estate in a district to the value of \$100, or real and personal estate together, or personal estate alone, of the value of \$400, or being a professor in a college, or a teacher in a school, or a minister or priest in charge of a congregation, may be registered as a voter. Prisoners convicted of crime, lunatics in the public asylum, and paupers, are disqualified. Judges of the Supreme Court may not vote, nor may sheriffs, except in case of a tie. Only male persons, twenty-one years of age and being British subjects, may vote. A strong attempt was made to incorporate the principle of woman suffrage in the act, but it was opposed by the Government and defeated. The voters' lists are prepared by revisers appointed by the several municipalities throughout the province. At a general election, all the polls must be open on the same day. The first proceeding is the nomination of candidates, who must be publicly nominated at a court held by the sheriff: if more than the requisite number of candidates are nominated, an election is held seven days thereafter. The elections are by ballot.

An act was passed in 1889 providing for the formation of limited partnerships, under which two or more persons, after giving the specified notice, may engage in any business as limited partners, each being liable only for his share of the capital, provided the provisions of the act are strictly adhered to, otherwise they are liable as full partners. The published notice must specify the amount of capital subscribed by each partner, and the time for which the partnership is to continue.

Acts were passed in amendment of the Joint-Stock Companies act, the Public Health act, the Highways act, and the act relating to minors and apprentices.

The most important piece of local legislation was the act to unite St. John and Portland. These cities are at the mouth of St. John river and are geographically one, although for the past hundred years they have had separate governments. St. John was incorporated by royal charter in 1785; Portland became a city only within recent years. After an agitation extending over a long period, a commission was appointed to frame terms of union, and the scheme was submitted to a popular vote and carried by a large majority, whereupon the two cities were united by legislation under the name of St. John. George A. Barker was chosen first mayor of the new city, which by the union became the fifth in point of population in Canada; but he died soon after entering upon his official duties. His successor was W. A. Lockart.

Considerable political excitement was caused by the appointment of Solicitor-General Ritchie to the office of police magistrate, and Messrs. A. A. Stockton and Silas Alward, representatives, the former of the city and county of St. John, and the latter of the city of St. John, in the Legislature, resigned their seats by way of protest.

The Legislature was dissolved on Dec. 31.

Exhibitions.—A very successful electrical exhibition was held in St. John in the summer of 1889; also an exhibition of agriculture, live



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stock, and manufactures, at Moncton, which was open to all the maritime provinces of Canada, and was a success.

Railways.—The most important railway event in 1889 was the opening of the "Short Line," so called. This is the extension eastward from Montreal of the Canadian Pacific, and is provided by a line known as the International, crossing the State of Maine, and built under a subsidy from the Canadian Government. The International Railroad is operated by the Canadian Pacific, which has running rights over the Maine Central, the New Brunswick, and the Intercolonial railways, whereby it is able to maintain a through-train service from Montreal to Halifax, passing through St. John, thus completing its line from the Pacific to the Atlantic. As the port of St. John is open all the year round, and the nearest in Canada to Montreal accessible in winter, the citizens expect material commercial advantages from the reduced distance in railway transportation from the interior. The distance from Montreal to St. John by the new line is 434 miles.

The Temisquata and Rivière du Loup Railroad, from Edmundston, on the New Brunswick Railroad to Rivière du Loup on the Intercolonial, 80 miles long, was opened for regular traffic during the year. It gives the shortest route between the maritime and interior provinces of Canada on Canadian soil. The Central Railroad of New Brunswick, from Norton on the Intercolonial Railroad, 40 miles long, was opened for traffic during the year. Work was begun on the Tobique Valley, 28 miles long, and on the St. Francis, 36 miles long. The Shore Line, formerly the Grand Southern Railroad, was sold under mortgage and bought by Russell Sage, of New York. This road is between St. John and St. Stephen, and is 80 miles long. Work was also begun on a line from Fredericton to Woodstock, 63 miles. A survey for a line between Edmundston and Moncton, passing through the center of the province, and designed to give the Grand Trunk Railroad an eastern Canadian winter outlet, was made. A company associated with the Northern Pacific Railroad was incorporated to construct a railway across the northern part of the province.

Long-distance telephones were introduced and a line erected between St. John and Fredericton, 85 miles; St. John and Moncton, 87 miles; and Moncton and Sackville, 40 miles.

Trade.—The export and import trade of the province, exclusive of its trade with the other provinces of Canada, in the year ending June 30, 1889, was \$13,277,935, divided as follows:

Imports, \$6,577,037; exports, \$6,700,898. The province dealt more largely with the United States than with any other country, the amount of its trade with that nation being: Imports from the United States, \$3,266,498; exports to the United States, \$3,380,958; total, \$6,647,457. With Great Britain the trade was: Imports from Great Britain, \$2,420,885; exports to Great Britain, \$3,044,608; total, \$5,465,493.

Education.—The general features of the New Brunswick school system were described in the "Annual Cyclopædia" for 1883. A few important changes have been made since that date. The ranking system, under which teachers were

partly paid according to results, has been abolished, a system of superior schools established, and the county grammar schools reorganized. The efficiency of the service has been increased by making training on the part of every teacher obligatory before a license is granted. The subject of scientific temperance has been prescribed as a part of the regular school course, and important changes have been made as respects the subjects of industrial drawing and natural science.

NEW HAMPSHIRE, a New England State, one of the original thirteen, ratified the Constitution, June 21, 1788; area, 9,305 square miles; population, according to the last decennial census (1880), 346,991; capital, Concord.

Government.—The following were the State officers during the year: Governor, Charles Henry Sawyer, Republican, succeeded by David H. Goodell, Republican; Secretary of State, A. B. Thompson; Treasurer, Solon A. Carter; Attorney-General, Daniel Barnard; Superintendent of Public Instruction, James W. Patterson; Insurance Commissioner, Henry H. Huse; Railroad Commissioners, Henry M. Putney, Benjamin F. Prescott, J. M. Mitchell; Chief Justice of the Supreme Court, Charles Doe; Associate Justices, Isaac W. Smith, William H. H. Allen, Lewis W. Clark, Isaac N. Blodgett, Alonzo P. Carpenter, and George A. Bingham.

Finances.—The treasury statement for the year ending June 1 is: Cash on hand, June 1, 1888, \$100,755.92; receipts for the year ensuing, \$1,317,295.97; disbursements, \$1,104,208.21; cash on hand, June 1, 1889, \$313,843.68. The receipts chargeable to revenue for the year were \$628,993.08, of which \$500,000 was derived from the State tax levy assessed upon the towns, \$107,353.38 from the railroad tax, and \$8,513.71 from the insurance tax. The disbursements from the revenue account were \$402,648.68, showing an excess of revenue amounting to \$226,344.40. The sum of \$539,029.34 was derived from the State tax levied upon savings banks, of which \$488,969.48 was paid to the towns and \$50,059 to the State Literary fund. The proceeds of this fund are also distributed to the towns, to be expended for education only. The total railroad tax received was \$240,576.96, of which \$107,353.38 went to the State revenue account and \$133,223.58 was distributed to the towns.

During the fiscal year there were paid State debt bonds amounting to \$14,000, reducing the funded debt on June 1 to \$2,784,600. On July 1 and Sept. 1 bonds to the amount of \$250,000 fell due and were paid, leaving the debt on Dec. 31 \$2,534,600. The total liabilities of the State on June 1 amounted to \$2,953,550.23, deducting from which the cash treasury balance on that date, leaves \$2,632,316.17. This is a decrease of \$226,344.40 from the actual indebtedness of one year previous. The amount of property assessed in the towns in 1888 for local taxation and to raise the State tax of \$500,000 was \$183,269,980.70, of which \$119,688,450 was the valuation of lands and buildings and \$14,169,046 of mills and machinery. The average rate of local taxation in all the towns was \$1.64 on each \$100. The average rate for 1889 was \$1.48. This average rate is the rate that the State each year assesses on railroad, telegraph, and telephone

property for the State tax upon such property. The State tax on savings-bank deposits is uniformly \$1 on each \$100.

Constitutional Convention and Prohibitory Amendment.—The Constitutional Convention, for which members were elected in November, 1888, met at Concord on Jan. 2, and organized by the choice of ex-Gov. Charles H. Bell as president. Its deliberations resulted in the adoption of seven proposed amendments to the Constitution, to be submitted to a popular vote on March 12. The first of these amendments changes various articles so that the Legislature shall meet on the first Wednesday in January, instead of the first Wednesday in June, and so that the terms of legislative and executive officers shall begin in January instead of June. The second amendment strikes out Article XV of the Constitution, which provides that the salary of members of the Legislature shall be fixed by law, and substitutes therefor an article fixing the compensation for each regular session at \$200, without mileage, for each member, the presiding officers receiving an additional \$50. For each special session the officers and members shall receive \$3 a day, with mileage, for not over fifteen days. The third amendment takes the power of filling vacancies in the State Senate from the joint convention of both Houses, and relegates it to the people, the Governor having power to call a special election. The fourth amendment adds to Article XLIX a provision by which the Speaker of the House shall act as Governor, in case the latter office and the presidency of the Senate are both vacant. The fifth or prohibitory amendment forbids the manufacture and sale of intoxicating liquors. The sixth amendment strikes out from Article VI of the Bill of Rights such portions as authorize or tend to authorize a State religion, and the seventh amendment revises certain portions of Article XI of the Constitution so that it shall read as follows:

Whenever any town, place, or city ward shall have less than 600 such inhabitants, the general court shall authorize such town, place, or ward to elect and send to the general court a representative such proportionate part of the time as the number of its inhabitants shall bear to 600; but the general court shall not authorize any such town, place, or ward to elect and send such representative, except as herein provided.

The Convention adjourned on Jan 12.

Efforts were made by the friends of prohibition in favor of the fifth amendment, but, as a two-third vote was necessary to secure its adoption by the people, the odds were greatly against them. At the election on March 12 the first four and the seventh amendments received the necessary two-third majority, and were adopted; the sixth secured only a majority of the votes cast, while the fifth or prohibitory amendment failed to secure even that. The vote, in detail, was as follows: No. 1—yes, 38,352; no, 11,654. No. 2—yes, 37,872; no, 12,218. No. 3—yes, 34,990; no, 12,224. No. 4—yes, 35,768; no, 11,530. No. 5—yes, 25,768; no, 30,976. No. 6—yes, 27,737; no, 20,048. No. 7—yes, 30,002; no, 12,846. The Convention passed an order declaring that the first amendment, if adopted, should take effect on Nov. 1, and all others on the first Wednesday of June.

Legislative Session.—The regular biennial session of the Legislature convened on June 5, and adjourned on Aug. 17. Having counted the returns for Governor and found no election by the people in November, the House in joint session on the opening day elected David H. Goodell, the Republican candidate, by a vote of 168 to 114 for Charles H. Amsden, the Democratic candidate. One vote was cast for Edgar L. Carr, Prohibitionist. Later in the session Secretary of State Thompson and Treasurer Carter were re-elected. The choice of a United States Senator for the term that began on March 4 preceding devolved upon this Legislature. The term of Senator William E. Chandler expired on that date, and, as no successor had been elected by the Legislature, Gov. Sawyer, on Feb. 15, appointed Gen. Gilman Marston to fill the vacancy until the meeting of the Legislature in June. Ex-Senator Chandler was a candidate for re-election, his principal competitor being Congressman Jacob H. Gallinger. At a caucus of Republican members on June 13, Chandler received 125 votes, Gallinger 60, Marston 2. The ex-Senator was declared the nominee, and on June 18 he was elected Senator by the following vote: Senate—Chandler, 18; Harry Bingham, the Democratic nominee, 6. House—Chandler, 165; Bingham, 137; scattering, 5. A commission of three persons was created to revise and codify the public statutes and to make such changes as may be needed on account of the adoption of constitutional amendments. A system of free textbooks for the public schools was adopted, the expense of such books to be borne by each city and town. A State Soldiers' Home was established, and the sum of \$30,000 was appropriated for it. The board of managers created by this act, later in the year, accepted the gift of a site for the institution, containing forty acres, in the town of Tilton. The sum of \$60,000 was appropriated to the State Normal School for the erection of new buildings and for their equipment. A State tax of \$500,000 was levied for each of the years 1890 and 1891. An attempt to supplant the prohibitory law by a license law was defeated in the Lower House. Other acts of the session were as follow:

Appropriating \$10,000 for completing the record of New Hampshire soldiers and sailors in the civil war.

Imposing an annual tax of 1 percent. on the amount paid in upon the stock or shares of every building and loan association.

Appointing the State Board of Health to be a commission of lunacy.

Requiring savings banks, instead of the State, to publish lists of unclaimed deposits.

Restricting to the Supreme Court alone the jurisdiction for the naturalization of aliens.

Taxing the capital stock and deposits of trust companies, loan and trust companies, loan and banking companies, and other like corporations, in the same manner as the special and general deposits of guarantee savings banks.

Making fowls of every description, exceeding \$50 in value, liable to taxation.

To prevent contagious disease among domestic animals.

To prohibit the taking or killing of rabbits by use of a ferret.

Punishing the selling of tobacco in the form of cigarettes to minors.

Appropriating \$10,000 for the Conemaugh valley sufferers in Pennsylvania.

Appropriating \$12,000 for a statue to Gen. John Stark.

Education.—The following public-school statistics cover the school years 1887-'88 and 1888-'89:

	1888.	1889.
Number of public schools....	2,314	2,293
Average length of school in weeks.....	22.90	22.78
Number of scholars enrolled..	61,826	60,124
Average attendance.....	44,577	43,484
Number not attending any school.....	2,518	1,825
Male teachers.....	316	312
Female teachers.....	2,756	2,727
Monthly wages, male teach'rs.	\$44 32	\$43 37
Monthly wages, female teachers.....	\$24 93	\$25 42
Number of school-houses....	2,131	1,993
Number built during year...	28	43
Value school property.....	\$2,301,336 77	\$2,380,605 51
Total expenditures for schools	\$705,488 91	\$739,073 50
Teachers' salaries.....	\$474,400 55	\$475,035 20

The State Superintendent of Public Instruction says in his latest report: "The number of small schools under the town system is still decreasing. The last year twenty-one were dropped. As a consequence, the number of graded schools increased sixteen, and of high schools two."

Charities.—The State Insane Asylum contained 339 patients on May 1, 1888—males 159, females 180. There were admitted during the year ensuing 155 patients, and discharged 158, leaving 336 on May 1, 1889. The receipts were \$98,284.25, and the expenditures \$97,402.09. Only a small portion of the receipts were derived from the State treasury.

Prisons.—The State Prison on May, 1, 1888, contained 115 convicts; 42 were received and 47 discharged during the year following, and 110 remained on April 30, 1889, all but one of whom were males. The average number for the year was 106. The earnings of the institution were \$15,148.26, and the expenses \$19,090.18. Since 1878, when the number of prisoners was slightly in excess of 200, there has been a gradual decrease, and the prison accommodations are now much greater than the needs.

At the Industrial School there were 100 boys and 20 girls on April 1. The total receipts for the year preceding were \$21,261.73, and the payments \$19,647.01. The sum of \$1,261.64 was derived from the sale of hosiery and farm products.

Savings Banks.—The savings banks of the State held deposits at the close of 1888 amounting to \$57,300,590.48. Their guarantee fund was \$3,083,264.75, their surplus \$2,174,746.05, and their miscellaneous debts \$169,097.89, making the total liabilities \$62,727,699.17. Of their investments out of New England, \$22,632,067.72 was in Western loans, and \$20,237,722.02 in United States, State, county, city, town, district, railroad, and miscellaneous bonds, and in railroad, bank, manufacturing, and miscellaneous stocks. The aggregate amount of home loans was \$14,530,130.22, an increase during the year of \$1,341,308.85, or a little over 10 per cent. The increase in Western loans during the year was \$918,387.28, or a little over 4 per cent.

The number of depositors Jan. 1, 1889, was 144,834, of whom 129,034 had deposits not exceeding \$1,000, and 109,711 deposits not exceed-

ing \$500. The average amount to each depositor in the State was \$395.12.

Insurance.—The following is an aggregate of New Hampshire fire-insurance business at the close of 1888: Home companies, risks in force, \$70,512,950.12; losses paid during the year, \$282,091.85; retired companies' risks in force, \$7,574,173.67; losses paid, \$30,275.93; factory mutuals' risks in force, \$41,726,752; losses paid, \$23,977.52. No foreign fire-insurance companies were licensed to do business in the State during the year. At the close of 1888 foreign and domestic life-insurance companies held policies in force in the State amounting to \$13,732,765.22, and had paid losses during 1888 amounting to \$195,196.99.

Railroads.—The contest between the Boston and Maine Railroad Corporation on the one hand, seeking to obtain control of the Concord Railroad, the Boston, Concord, and Montreal Railroad, and subsidiary roads in the northern part of the State, and the friends of these latter roads on the other hand, which was so bitterly fought in the Legislature of 1887, was continued in a less open manner through 1888, influencing to a considerable degree the course of politics in the State. In the canvass of 1888 the choice of candidates and their election to the Legislature depended largely, in many localities, upon their position in this controversy. Before the Legislature of this year assembled, the State Supreme Court had decided that the lease of the Boston, Concord, and Montreal road to the Boston and Lowell road, made in 1884, had been forfeited by the subsequent lease of the latter road to the Boston and Maine, and that the former road could not be controlled thereunder by the Boston and Maine. This was a substantial gain for the northern roads, but the contest was still unsettled. The matter was the subject of protracted debates before the Legislature, the result of which was the adoption of a compromise measure. This provides that the Concord and the Boston, Concord, and Montreal roads may unite to form a corporation, to be called the New Hampshire Railroad Corporation, with which the Boston and Maine Railroad may make contracts for the interchange of traffic for a term of years, but no lease of the other may be taken by either. Other provisions are as follow:

The Northern Railroad, the Concord and Claremont Railroad, the Peterborough and Hillsborough Railroad, the Nashua and Lowell Railroad, the Wilton Railroad, the Peterborough Railroad Company, or either of them, may lease their railroads, property, and franchises, and assign any leases they may have of other roads to the Boston and Maine Railroad or to the Boston and Lowell Railroad Corporation, which may take such leases and assignments. And the Mount Washington Railway, the Whitefield and Jefferson Railroad, the New Zealand Valley Railroad, the Profile and Franconia Notch Railroad, the Pemigewasset Valley Railroad, the Lake Shore Railroad, the Tilton and Belmont Railroad, the Suncook Valley Railroad, the Suncook Valley Extension Railroad, the Manchester and North Weare Railroad, the Concord and Portsmouth Railroad, and the Nashua, Acton and Boston Railroad, or any or either of them, may lease their railroads, property, and franchises to the Concord Railroad Corporation, the Boston, Concord and Montreal Railroad, or the new corporation formed by their union.

The Boston and Maine Railroad is hereby author-

ized to acquire by purchase the road, franchises, and property of the Eastern Railroad Company, and thereafter to acquire by purchase the roads, franchises, and property of the Eastern Railroad in New Hampshire, the Portsmouth, Great Falls, and Conway Railroad, the Portland, Saco and Portsmouth Railroad Company, the Wolfeborough Railroad, the Portsmouth and Dover Railroad, the Worcester, Nashua, and Rochester Railroad Company, the Manchester and Lawrence Railroad, the West Amesbury Branch Railroad Company, the Dover and Winnepesaukee Railroad, and the Portland and Rochester Railroad; and the Concord Railroad Corporation and the new corporation to be formed under section 2, or either of them, are also authorized to acquire by purchase the roads, franchises, and property of the Mount Washington Railway, the Whitefield and Jefferson Railroad, the New Zealand Valley Railroad, the Profile and Franconia Notch Railroad, the Pemigewasset Valley Railroad, the Lake Shore Railroad, the Tilton and Belmont Railroad, the Suncook Valley Railroad, the Suncook Valley Extension Railroad, the Manchester and North Weare Railroad, the Concord and Portsmouth Railroad, and the Nashua Acton and Boston Railroad.

Agriculture.—The following extracts are from the report of the Board of Agriculture, covering 1888:

The most complete returns at our command in regard to the present condition of New Hampshire agriculture indicate advancement. Dairying continues a prominent farm industry, and dairy products are increasing. Nine creameries have been established during the year, and with those already in operation have manufactured 1,000,000 pounds of butter. The grange has continued its vigorous work, and during the year has extended its benefits and influence. There are in the State 108 subordinate granges, with a membership of 7,500, having made a net gain in membership of about 1,000 during the year. Notwithstanding the encouraging features briefly mentioned in this report, there are many farms in our State, the soil of which would liberally respond to good husbandry, which are entirely neglected, and in many instances the former occupants and owners, seeking employment in manufacturing villages or cities, have left their farms, increasing the number of deserted homesteads.

Under a legislative act of this year, which appointed a commissioner to collect statistics regarding these deserted farms and to secure immigrants to repeople them, information was gathered showing that in 160 of the 235 towns in the State there were 927 deserted farms, on which the buildings were in fair condition. A pamphlet was published giving a description of many of these farms and the prices asked.

Decisions.—The State Supreme Court in September rendered a decision declaring the act regulating the practice of dentistry to be unconstitutional. The same court in December decided that the "Nuisance" act, passed by the Legislature of 1887, for the closing by injunction of places where liquor is illegally sold or kept for sale, was constitutional, and the court also held that the parties proceeded against under its provisions are entitled to jury trial.

Sunapee Lake.—Among the attractions of the State is Lake Sunapee, recently become known as a summer resort, and famous among anglers as perhaps the best stocked water in the New England or Middle Atlantic States. The lake lies partly in Sullivan, partly in Merrimack County, 1,100 feet above the sea. Forest-clad mountains look down upon it—Kearsarge, Acutney, and Croydon—each about 3,000 feet high.

with Mount Sunapee rising abruptly from the southern shore 2,200 feet; picturesque islands diversify its surface; cool beaches, skirted by pines and hemlocks, stretch their sparkling sands to the west; and mountain brooks flow into shadowy estuaries fragrant with the native *Nymphæa*. As a health resort, Sunapee Lake is especially noted. The temperature at the surface varies little from that of the air. At a depth of from 50 to 70 feet, it ranges from 52° to 44° in summer; early in May, 39° to 45° is reached at a depth of 15 feet. Thus the bottom temperature of Sunapee is nearly the same as the mean bottom temperature of well-known European lakes. The waters of Sunapee are the home of six species of *Salmonidæ*: 1. The brook trout, native to the system; 2. The land-locked salmon; 3. The rainbow trout, from the Sierra Nevada; 4. The blue-backed trout of Maine, intended as a food-supply for the larger salmonoids. 5. The Loch Leven trout, introduced from Scottish waters in January, 1887, by Prof. John D. Quackenbos, of Columbia College, New York; 6. The *Salvelinus Sunapee*, or white trout, which first appeared in the lake in 1881, regarded by some as a hybrid between the brook trout and the salmon, by others as an adult blue-back. (See TROUT, NEW SPECIES OF). The country surrounding the lake affords to the visitor an endless variety of forest drives and mountain rambles, which disclose an interesting flora to the botanist, and to the geologist, archæan rocks with their beryls, amethysts, garnets, and tourmaline, and a diversity of glacial phenomena, including rocking-stones and pot-holes.

NEW JERSEY, a Middle Atlantic State, one of the original thirteen, ratified the Constitution Dec. 18, 1787; area, 7,815 square miles; population, according to the last decennial census (1880), 1,131,116; capital, Trenton.

Government.—The following were the State officers during the year: Governor, Robert S. Green, Democrat; Secretary of State and Insurance Commissioner, Henry C. Kelsey; Treasurer, John J. Toffey; Comptroller, Edward L. Anderson; Attorney-General, John P. Stockton; Superintendent of Public Instruction, Charles W. Fuller, succeeded by Edwin O. Chapman; Chief Justice of the Supreme Court, Mercer Beasley; Associate Justices, Manning M. Knapp, Alfred Reed, Edward W. Scudder, Bennet Van Syckel, David A. Depue, Jonathan Dixon, William J. Magie, and Charles G. Garrison; Chancellor, Alexander T. McGill, Jr.; Vice-Chancellors, Abraham V. Van Fleet, John T. Bird, and Henry C. Pitney. The appointment of Vice-Chancellor Pitney was made on April 9, in pursuance of a legislative act permitting the appointment of two additional vice-chancellors.

Finances.—The balance in the State revenue fund on Oct. 31, 1888, was \$169,940.48; the receipts for the year ensuing, including \$150,000 temporarily borrowed, were \$1,477,905.02; the expenditures were \$1,405,849.02, and there remained a balance of \$241,996.48 on Oct. 31, 1889. The receipts include the following items: Tax from railroad corporations, \$938,515.59; miscellaneous corporations, \$222,795.03; tax from certificates of incorporation, \$43,463.20; tax from foreign insurance companies, \$6,110.48; State Prison receipts, \$64,267.22; dividends on stock of United

companies, \$18,870; Home for Disabled Soldiers, 18,772.33; official fees, \$18,230.55; judicial fees, \$13,597.11. The receipts from railroads are about \$50,000 less than last year; State Prison receipts increased from \$57,284 to \$64,267.

In order to meet expenses on Jan. 1, 1890, the entire balance in the State fund on Oct. 31 was required, and nothing remained to meet the temporary loans outstanding to the amount of \$400,000.

In the State School fund, which is not included in the statement above, the balance on Oct. 31, 1888, was \$303,435.98; the receipts for the ensuing year were \$472,797.50; the disbursements, \$446,328.66; and there remained on Oct. 31, 1889, a balance of \$329,904.82.

The total receipts of the sinking fund during the year, including the annual State appropriation, were \$208,669.40. The payments therefrom, including \$102,000 of the principal of the State debt paid, amounted to \$186,554.47. The amount of the fund is \$577,653.27. The bonded debt was reduced to \$1,196,300 on Oct. 31.

Taxation.—Since 1884 no State tax has been assessed upon property generally, except for school purposes, for which a rate of $2\frac{1}{2}$ to 3 mills is required. The tax for the support of the State government is levied only on the property of railroad and canal companies, and on the property, stock, or earnings of other corporations. In 1888 the State railroad tax amounted to \$1,316,282.93. The tax for 1889 was \$1,329,608.55. In 1888 a tax of \$360,197.59 was assessed upon 1,457 miscellaneous corporations, and in 1889 the sum of \$314,972.08 was assessed on 1,281 similar corporations.

Legislative Session.—The one hundred and thirteenth session of the Legislature convened on Jan. 8, and adjourned on April 20. On Jan. 22 United States Senator John R. McPherson was re-elected for a second term by the following vote: Senate—McPherson 11, ex-United States Senator William J. Sewell (the Republican caucus nominee), 10; House—McPherson 32, Sewell 28. Senator McPherson was the nominee of the Democratic caucus. The Democrats were in the majority in both branches of the Legislature, and proceeded to undo the principal legislative work of its Republican predecessor. The local-option act of 1888 was repealed, and a new law was enacted which copies the high-license features of the former act, but omits its local-option provisions. It also requires for the first time a license fee from persons selling in quantities from one quart to five gallons, the amount being the same as that imposed on strictly retail dealers. The vote upon this act in the House was 32 yeas (Democrats 31, Republican 1) to 27 nays (Republicans); in the Senate, 11 yeas (Democrats) to 10 nays (Republicans). Objection was raised that this act would not render void the elections under the act of 1888, which in five counties had resulted against license; but Chief-Justice Beasley, on April 9, in a case in Hunterdon County, ruled that "by the repeal of last year's act the prohibition against granting licenses has been done away with, and the power and duty to grant licenses as of old has been restored." The Democrats also passed a series of acts depriving the Legislature of whatever power it possessed to appoint, or as-

sist in appointing, various State officers, and vesting it entirely in the Governor. Among the officials whose tenure was thereby changed were the trustees of the Reform School and of the State Industrial School for Girls, the riparian commissioners, the commissioners of fisheries, the managers of the Morristown Insane Asylum, and the inspectors of the State Prison. The appointment of the State Superintendent of Education was taken from the State Board of Education and vested in the Governor. An act for the government of cities was passed, which provides that in all cities the mayor shall have the sole appointment of administrative city officers. The mayor is also given power to veto any order adopted by any city board, but a two-third vote of the board may pass it over his objection. By this act the responsibility for municipal administration is placed almost entirely upon the mayor. In all cities that now elect their mayor annually, he shall hereafter be elected for two years.

Provision was made for the first time to permit the parole of prisoners from the State Prison, under the direction of the keeper and the board of inspectors. The personal registration act of 1888, applicable to Newark and Jersey City, was repealed. An act redistricting the State for members of the Lower House was passed by a party vote in each House. A ballet-reform bill passed the Lower House, but failed in the Senate. Other acts of the Session were as follows:

Requiring the polls at all elections to be opened from six o'clock in the morning till seven o'clock in the evening. [This act repeals the "sunset" law of 1888.]

Repealing the act of 1888 providing for commissioners of juries.

Authorizing the public schools to receive persons over eighteen years of age and less than twenty years. To enable boards of chosen freeholders to acquire, improve, and maintain public roads.

Providing that no local or charter election shall be held on the day of a general election, or on which members of the Legislature are elected, and designating the first Tuesday of December as the day to which local or charter elections heretofore occurring on such election day shall be changed.

Providing that any township of over 1,500 inhabitants may vote to become incorporated as a town.

To legalize the adoption of labels, trade-marks, and forms of advertising by associations or unions of workmen.

Declaring any lease of real estate to be void, whenever the lessee uses the estate for purposes of prostitution or assignation, and making him immediately liable to be ejected.

Requiring that, in all school-district meetings, the voting for school trustees and for the appropriation of money shall be by ballot.

Authorizing all corporations, except railroad and canal corporations, to increase their capital stock.

Providing that in every borough, police, sanitary and improvement commission or other municipality, where the members of the governing board are in part elected by the people and in part appointed by a justice of the Supreme Court, all the members of such governing board shall hereafter be elected by the people.

Authorizing township committees to make any abatement, adjustment, or settlement of past due taxes which they may deem just and for the interest of the township.

Providing that honorably discharged Union soldiers or sailors, holding public office or place under any

city or county, shall hold office during good behavior, and shall not be removed for political or partisan reasons.

To incorporate building associations formed by Knights of Labor or other societies of organized labor.

Providing that, in case of dispute between persons as to their right to any office in certain cities of the State, the Chief Justice of the Supreme Court, on petition, shall appoint a special term of that court, and shall himself speedily hear and determine the controversy. [The Chief Justice refused to comply with this act, adjudging it to be void.]

Authorizing the excise boards of cities to transfer or revoke licenses and to appoint a license inspector.

Regulating banking, trust, guarantee, safe-deposit, and indemnity corporations and requiring annual reports.

Giving all persons or corporations engaged in manufacturing, spinning, or throwing cotton, wool, or silk into yarn or other goods, a lien on such goods.

Revising the militia law.

Regulating the construction of buildings and prescribing what means of egress, what fire escapes, and what appliances for extinguishing fires shall be provided by their owners.

Education.—The amount appropriated in the State for school purposes during the school year was \$3,323,067.02. Of this sum \$1,939,235 were derived from the State school tax, being \$68,180 more than in the previous year. There was derived from the township tax for school purposes \$47,224.04, and from district and city taxes \$1,204,345.94. Of this last amount, \$678,548.22 was expended for building and repairing school-houses. From the income of the school fund the sum of \$100,000 was apportioned to the school districts, and the interest of the surplus revenue fund, amounting to \$32,262.04, still available in sixteen counties was also expended for schools.

Thirty-two school-houses were erected during the year, seven to replace old buildings. These furnish accommodations for but 1,972 additional children, while the last school census shows an increase over the previous year of 4,362. The total value of school property is \$8,300,610.

There were enrolled during the year 227,441 pupils. According to the school census taken in May, there were 392,209 children of school age.

During the school year ending in 1889, 255 pupils were in attendance at the Normal School. The number of graduated in the advanced course was 19, and in the elementary course 41. The whole number in attendance at the Model School during the year was 445; graduates, 14.

Charities.—At the Morristown Insane Asylum there were under treatment during the year 1,122 patients, of whom 857 remained on Oct. 31. Of this number 427 were males and 430 females, 723 public and 134 private patients. The average number were 907. The total receipts for the year, including balance on hand, were \$247,093.47, and the total expenditures, \$246,863.69.

At the Trenton Insane Asylum the number of patients during the year were 947—males 474, females 473. There were 169 discharged during the year. The total receipts, including balance on hand, were \$225,614.86, of which \$20,000 was a transfer on account of appropriation for new buildings. The total amount disbursed was \$207,343.10, of which \$31,935.80 was expended for new buildings. At the Deaf-Mute School there were 123 pupils during the year, of whom

110 remained on Oct. 31. The State expended \$27,224 for support, and \$5,000 for repairs.

The State supports the blind children in the institutions of New York city and Philadelphia, there being 33 in New York and 11 in Philadelphia. The amount paid during the year to the New York institution was \$6,907.16, and to the Philadelphia institution \$2,537.26. There have been 144 feeble-minded children cared for at the expense of the State, being an increase of 36 over last year; 76 of these were maintained at the Pennsylvania School at Elwyn, 4 at the Connecticut Institution, and 64 at the home at Vine-land, N. J. The amount paid was \$32,800.13.

State Prisons.—There were in confinement on Oct. 31, 997 prisoners, being an increase of 116 over the number on Oct. 31, 1888. The total number confined during the year was 1,410, and the daily average 965, of whom 929 were males and 36 females. The total expenditures were \$154,565.55, a per capita cost of \$160.17 per annum. The earnings for the year were \$54,985.94. The daily cost of maintenance was reduced from 47.35 cents to 43.88 cents.

On Oct. 31 there were 327 boys at the State Reform School, an increase of 74 over one year before. There was received during the year from the State \$52,157.50; from the farm and other industries, \$3,349.61, which, with the balance on hand Oct. 31, 1888, of \$823.82, in all amounting to \$56,330.83, comprises the total receipts. The expenditure was \$54,573.66, leaving a balance on hand Oct. 31, 1889, of \$1,757.17. There was also consumed at the institution products of the farm and stock to the value of \$4,816.83.

At the Industrial School for Girls there were on Oct. 31, 52 girls, and 32 others were under indenture, making 84 under the control of the trustees. The receipts were \$10,620.38; expenditures, \$8,547.16; balance, \$2,073.22.

Soldiers' Home.—The inmates of the home numbered 431 on Oct. 31, an increase of 64 over the number at the same time in 1888. There were admitted during the year 440, and discharged 376. The average number was 411. Since the home was opened 16,125 have been cared for. The receipts for the year amounted to \$55,994.92, of which \$18,772.32 was from the United States Government. The disbursements amounted to \$54,031.74, leaving a balance of \$1,862.85 in the treasury.

Militia.—The strength of the National Guard on Oct. 31 was 320 commissioned officers and 3,962 enlisted men. Two new companies were added during the year to the force, which now consists of fifty-seven companies of infantry and two Gatling-gun companies.

Riparian Commissioners.—The principal of the grants, leases, and leases turned into grants during the year ending Oct. 31, 1889, amounted to \$225,986.32. The amount paid to the State during the year as rental on leases made by the Legislature or by the commissioners, was \$57,519.60. The principal of grants and capitalization of leases for lands disposed of from the beginning of the system to Oct. 31, 1889, was \$3,349,585.18. The amount received for rentals during the same period was \$1,041,520.50.

Decision.—Late in February the Supreme Court rendered a decision in the case of *State vs.*

Kuhl, regarding the appointing power of the Governor. The Constitution provides that "when a vacancy happens during the recess of the Legislature in any office which is to be filled by the Governor and Senate, or by the Legislature in joint meeting, the Governor shall fill said vacancy, and the commission shall expire at the end of the next session of the Legislature, unless a successor shall be sooner appointed." The court held that under this clause the Governor may, in the recess, make an appointment to fill the office temporarily, where the vacancy began during the session of the Legislature.

State Boundary.—The commission appointed in 1888 to mark out the boundary between New York and New Jersey through the Kills, the North river, and New York Bay, reached an agreement with the New York commissioners, and adopted a line which is practically the middle of the channel in New York Bay and runs eastward of Ellis's and Bedlow's Islands and the Robin's Reef light-house. This was marked, as far as possible, by monuments and buoys, and maps showing its course were prepared and filed with each State.

Political.—The State election of this year was important from the fact that a Governor as well as members of the Legislature were to be chosen. The Prohibitionists met in State convention at Asbury Park on July 19, and nominated George La Monte for Governor. Resolutions were adopted which declare unalterable opposition to the liquor traffic, favor separate party organization and action, denounce bribery at elections, favor the Australian system of voting, condemn all trusts, demand the preservation of the sanctity of the Christian Sabbath, and recommend the passage of a law requiring the public-school teachers of New Jersey to give lessons in physiology and hygiene relative to the effects of strong drink on the human system. One resolution is as follows:

That we are opposed to any of our citizens being disfranchised by the usurpation of authority by officials of this State. The same principles of right that allow women to vote at school meetings should be extended to all other questions.

The Democratic State Convention was held at Trenton on Sept. 10, and nominated Ex-Gov. Leon Abbett. The platform contains the following declarations upon State issues:

That we favor equal taxation, and declare that reform in that direction should be followed upon the lines laid down in the inaugural address of Gov. Leon Abbett, until the entire distribution of public burdens shall square with the constitutional requirements of fairness and equality. Under a partial adoption of the recommendations of that address, a general State tax has been rendered unnecessary during the past five years, and we promise the people of New Jersey that the affairs of State shall be so economically administered, while intrusted to the Democratic party, that there shall not be any general State tax necessary. We denounce the attempt made by Republican members of the Legislature of 1889 to impose a general State tax, as tending to extravagance in State expenditures, and we declare the undercurrent of that movement to have been a desire to relieve corporate property from the payment of its fair proportion of taxation. Under the system of taxation instituted in response to the recommendations of Gov. Abbett, the sum of \$7,749,742 has been assessed, within the past five

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years, upon corporations, many of which, prior to 1884, enjoyed exemptions from taxation, and thereby increased the tax upon private owners. In the same time there has been assessed upon railroad and canal property, theretofore wholly exempted from local taxation, the sum of \$1,630,683 for the use of our cities, towns, and townships. This amount represents a clear gain to the municipalities of the State.

We demand reform in the matter of municipal expenditures throughout the State.

We favor such revision of the election laws of the State as will guarantee to every voter the greatest possible secrecy in the casting of his ballot, and secure the punishment of any who attempt the corruption or intimidation of voters.

The Republican State Convention met at Trenton on Sept. 17, and nominated, on the second ballot, Gen. E. Burd Grubb as its gubernatorial candidate. The platform is devoted almost entirely to local issues, and contains the following:

We declare ourselves pledged to local self-government, in township, city, and county. We are in harmony with that provision of the State Constitution which declares "the Legislature shall not pass local or special laws regulating the internal affairs of towns and counties," the spirit of which provision was not only ignored, but flagrantly violated by the last Legislature. The Legislature of 1889 stands without a parallel in the history of the State in the character of its majority. It was partisan, it was arrogant, it was profligate. It passed its iniquitous partisan repealers, its enactments for the redistricting of the State, its new charters for municipalities, and its acts for the creation of new offices only after deals and promises of appointment made between the legislative and executive branches of the State government. It is open and notorious history, since fulfilled, that municipal charters were passed and foisted upon the people upon twenty-four hours' publication, through the efforts and votes of those who were to and did take office under them. It entered into municipalities and counties against public protest, and absolutely annihilated existing methods of local government, destroyed ward boundaries, and overthrew all just basis of local representation in local boards, in defiance of the bill of rights in the Constitution of the State which affirms that "all political power is inherent in the people." It not only repudiated all attempts at ballot reform tendered it by the voice of united labor and a universal public sentiment, but it trampled upon every semblance of fair elections by the repeal of all the protective provisions of existing laws for the registration and honest return of the result of elections in the several municipalities of the State.

We favor the enactment of statutes reforming the election laws of the State to prevent fraud and false registration and for the purposes of establishing the Australian or other like system of voting, whereby the voter shall be enabled to act independently and intelligently in the exercise of his citizenship.

We recognize the fact that there is a pressing demand for greater economy in all departments of the State government. The expenditures of the State under twenty-one years of Democratic executive control have increased the public burdens beyond that made necessary by the increasing population, and we promise, if given power, to eliminate all unnecessary expenses in every department.

At the November election, Abbett received 138,245 votes, Grubb 123,992, and La Monte 6,853. At the same time one third of the members of the State Senate were chosen, and the entire Lower House. The Republicans gained one Senator, giving them 11 members of the Senate to 10 for the Democrats. The Lower House will contain 23 Republicans and 37 Democrats, a gain of 5 Democratic members.

NEW MEXICO, a Territory of the United States, organized in 1850; area, 122,580 square miles; population, according to the last decennial census (1880), 119,565; capital, Santa Fé.

Government.—The following were the Territorial officers during the year: Governor, Edmund G. Ross, Democrat, succeeded by L. Bradford Prince, Republican; Secretary, George W. Lane, succeeded by Benjamin M. Thomas; Treasurer, Antonio Ortiz y Salazar; Auditor, Trinidad Alarid; Attorney-General until Feb. 15, William Breeden; Solicitor-General after Oct. 15, Edward L. Bartlett; Commissioner of Immigration, Henry C. Burnett; Chief-Justice of the Supreme Court, Elisha Van Long; Associate Justices, William H. Brinker, succeeded by William D. Lee, William F. Henderson, succeeded by John R. McFie, Reuben A. Reeves, succeeded by William H. Whiteman. The Legislature, by an act passed on Feb. 15 over the Governor's veto, abolished the office of Attorney-General, substituting therefor the office of Solicitor-General, and providing that no appointment should be made by the Governor to the office until after Oct. 1, until which time the district attorney for Sante Fé County should discharge the duties of the office. But Gov. Ross at once appointed Jacob H. Christ to the new office, to which R. E. Twitchell, as the district attorney of Sante Fé County, also laid claim under the act. A decision of the Supreme Court of the Territory in May established the claims of the district attorney, who performed the duties of the office until October, when Gov. Prince appointed Edward L. Bartlett.

Legislative Session.—The twenty-eighth session of the Territorial Legislature began on Dec. 31, 1888, and adjourned on Feb. 28, 1889. The most noteworthy act of the session provides for the assembling of a Constitutional Convention on the first Tuesday after the first Monday of September, 1889, to frame a Constitution under which the Territory shall ask for admission to the Union as a State. A special election of delegates to this convention was appointed to be held on the first Tuesday after the first Monday of August. An act relating to the finances establishes the first systematic method of financial management ever attempted in the Territory. It creates various treasury funds, among which all the receipts shall be distributed and from which expenditures shall be made for the special objects for which each fund is formed. For each of the years 1889 and 1890 a tax of seven mills on the dollar is levied, the proceeds of which shall be divided among the different funds in specified proportions: To defray Territorial expenses till March, 1890, when the proceeds of the seven-mill levy for 1889 will become fully available, the issue of six-per-cent. bonds not exceeding \$200,000, is authorized to be called provisional indebtedness bonds. Another act creates a State University at Albuquerque, an Agricultural College at Las Cruces, a School of Mines at Socorro, and an Insane Asylum at Las Vegas. To provide a fund for erecting buildings, an annual Territorial tax of one mill is assessed, the proceeds to be paid into the Territorial institution fund thereby created. An anti-lottery law was passed. A new election law establishes a system of registration, and pre-

scribes a uniform ballot. No persons other than election officers, challengers, and persons in the act of voting shall remain within ten yards of any polling-place. The voter may erase or write in other names on his ballot. All interference with a voter while he is within the ten-yard limit is forbidden, but no further provision to guard the secrecy of the ballot is made. Other acts of the session, a large number of which were passed over the Governor's veto, are as follow:

Defining the crime of slander of title.

Prescribing the work that must be done upon any mining claim in order for any one to secure a location or a relocation thereon.

Providing for the formation of limited partnerships.

Establishing a Board of Pharmacy.

Offering a bounty of \$1 for each lynx, \$5 for each wolf, panther, bear, or mountain-lion, and 50 cents for each coyote or wild-cat killed in the Territory.

Creating the counties of Chaves and Eddy out of the eastern portion of Lincoln County.

Amending the law relative to the estates of deceased persons.

Establishing a Cattle Sanitary Board for the Territory.

Amending the building-and-loan association law.

Providing that all animals intended to be slaughtered for human food shall first be inspected by a county inspector.

Repealing the act entitled "An act to provide the means to enable the penitentiary authorities to employ the convicts in mining coal."

To provide for the printing of the journals and laws in Spanish.

To provide for the protection and propagation of fish.

To create a Board of Health for the Territory.

To prevent women from entering saloons for the purpose of drinking therein, and prohibiting women from singing, playing musical instruments, or dealing cards, or running other games in saloons.

To prevent the overstocking of ranges.

Authorizing and regulating voluntary assignments for the benefit of creditors.

Education.—The report of the Territorial Auditor presents the following public-school statistics, covering the year ending Dec. 31, 1888: Pupils of school age (three counties estimated), 40,862; pupils enrolled during the year (three counties estimated), 16,803; average attendance (two counties estimated), 12,394; male teachers (four counties estimated), 303; female teachers (four counties estimated), 185; school districts (two counties not included), 466. The school law is defective in not providing for a Territorial Superintendent. A bill designed to remedy many defects of the present law was submitted to the Legislature this year, but failed. Reports obtained by the Governor from a majority of the counties show that, of 342 schools, 143 are taught in English, 106 in Spanish, and in 93 both languages are used.

Stock-raising.—The business of cattle-raising was depressed throughout the year on account of low prices. In the face of this, the number of cattle shows a slight increase from 1887 to 1888, the number in the former year having been 1,065,634, and in the latter year 1,127,529. During the same period the number of horses decreased from 46,666 to 45,119. Sheep-owners met with considerable losses both in the winter of 1887-'88 and that of 1888-'89, the number being reduced by that cause and by sales from 1,749,150 in 1887 to 1,339,790 in 1888. The high

price of wool did much to make up for such losses, and gave an impetus to the business.

Mining.—This industry was carried on with more than average success during the year. The most important mining discovery of the year was at San Pedro. The "Big Copper" mine at that place was run successfully through the year, employing about 300 men, but nothing else of consequence was being done in the vicinity, when the news suddenly spread of a wonderful discovery of rich carbonates in the "Lucky" mine, in the immediate vicinity of the "Big Copper." The "Lucky" was being worked to a small extent for iron ore for fluxing, when the new ore was struck. Considerable shipments immediately began, and a rush of miners to San Pedro quickly ensued. Other similar discoveries have since been made.

Constitutional Convention.—An election was held on Aug. 6 to choose delegates to a Constitutional Convention. The number elected was seventy-three. They met at Santa Fé on Sept. 3, and chose J. Francisco Chavez as president. The result of their labors, which ended on Sept. 21, was the adoption of a Constitution for the proposed State of New Mexico, which should be submitted to the electors of the Territory at the regular election in November, 1890, unless the passage of an enabling act by Congress meanwhile should render an earlier election necessary. The convention appointed a committee to present the Constitution to Congress, and to urge, in behalf of the Territory, its admission thereunder. When Congress assembled for its December session, the matter was laid before it.

NEW YORK, a Middle State, one of the original thirteen, ratified the Constitution July 26, 1788; area, 49,170 square miles; population, according to the last decennial census (1880), 5,082,871; capital, Albany.

Government.—The following were the State officers during the year: Governor, David B. Hill, Democrat; Lieutenant-Governor, Edward F. Jones; Secretary of State, Frederick Cook; Comptroller, Edward Wemple; Treasurer, Lawrence J. Fitzgerald; State Engineer and Surveyor, John Bogart; Attorney-General, Charles F. Tabor; Superintendent of Public Instruction, Andrew S. Draper; Superintendent of Prisons, Austin Lathrop; Superintendent of Insurance Department, Robert A. Maxwell; Superintendent of Bank Department, Willis S. Paine, succeeded by Charles W. Preston; Superintendent of Public Works, James Shanahan, succeeded in December by Edward Hannan; Chief Judge of the Court of Appeals, William C. Ruger; Associate Judges, Charles Andrews, Robert Earl, George F. Danforth, Rufus W. Peckham, Francis M. Finch, and John Clinton Gray.

Finances.—The State is practically out of debt. The amount outstanding is being paid as rapidly as the law permits. For the fiscal year ending Sept. 30, it was reduced to \$6,774,854.87 by the payment of \$100,000 Niagara reservation bonds, and of \$90,500 canal bonds. The amount of cash and securities held in the various trust funds of the State on Sept. 30 was \$13,241,097.24. For the year 1889 the State tax was \$12,557,352.74, the rate being 3.52 mills, and the valuation of property \$3,567,429,757. For

1888 the total tax was \$9,089,303.86. The receipts from the corporation tax increased this year over the receipts in 1888 by \$178,921.91. The amount collected was \$1,172,299.73.

The State Comptroller says: "Since my last annual report the Court of Appeals has rendered a decision in favor of the State in the case of the People *ex rel.* Platt as President of the United States Express Company *vs.* Wemple (116 N. Y.), which was instituted by me to test the liability of joint-stock associations, including the large express companies, to pay the tax upon their capital, under section 3 of the law."

The receipts of the treasury for the fiscal year were \$15,971,002.02, to which should be added a balance of \$5,396,454.75 on hand on Oct. 1, 1888. The payments for all purposes during the year were \$15,940,847.72, leaving a balance of \$5,426,609.05 in the treasury on Oct. 1, 1889. The general fund balance on the latter date was \$2,640,774.58. The amount expended by the State on the Capitol building, up to Oct. 1, has been \$18,399,195.29.

The assessed valuation of the State for the year 1889, was: Personal, \$354,258,556; real, \$3,213,171,201; total, \$3,567,429,757. This shows an increase, in one year, on real estate of \$90,583,117; personal estate of \$7,646,695; total, \$98,229,812.

Legislative Session.—The one hundred and twelfth Legislature was in session for twenty weeks, the average time for the past fifteen years. The number of bills introduced in the Senate was more than 800, and in the House more than 1,300, about the average number. The only constitutional amendment passed was one for extra justices of the Supreme Court, and this must be voted upon in November, 1890. This Legislature exposed the method of changing the ceiling of the Assembly chamber from a structure of stone to a structure of wood. The cost of this and of repairing the Assembly staircase was about \$350,000. When the Assembly met, the special committee of five members of the last Assembly who had the work in charge demanded an investigation before they would approve the work. This was given to the Committee on Appropriations, which hired experts, and reported that the Assembly Committee on Construction had neglected its duties; that the contractor had not fulfilled his contract; and that about \$100,000 had been cleared by him. A vote of virtual want of confidence was carried, and the investigation was transferred to a special committee of five Assemblymen, which took still further testimony, and reported that the contractor and the Superintendent of Public Buildings had conspired to rob the State. But the Assembly sustained the report of the Appropriation Committee and discarded the report of the special committee. The matter was then put in charge of the original Ceiling-Construction Committee, and an effort was made to prove a conspiracy, so as to work forfeiture of the contract. Later in the year the Attorney-General instituted an action against the alleged conspirators. Owing to the ceiling affair, little effort was made toward finishing the Capitol. Estimates were made by the Capitol Commissioner that a little over \$2,000,000 would complete the building.

Thirty-two weeks of school are now required

during the year, instead of twenty-eight as formerly. The school year in every district begins on July 25, instead of Aug. 20; and the annual school meeting will be held on the first Tuesday of August. All applicants for admission to normal schools must be residents of this State; or, if not, they can be admitted only upon the payment of tuition fees, or upon such other terms as shall be prescribed. Medical schools may hold property to the amount of \$2,000,000. A supplementary examination by the regents is required of graduates of medical colleges and others desiring to practice medicine. A fee of \$15 and a degree of doctor of medicine from a legally incorporated medical college are required before the same degree will be given by the regents of the university. The following cities have been authorized to issue bonds for school grounds and buildings in the amounts named: New York, \$2,500,000; Brooklyn, \$1,500,000; Buffalo, \$150,000; Lockport, \$85,000; and Utica not to expend more than \$30,000 in a year. The veto of a bill allowing St. Lawrence Theological Seminary to hold \$3,000,000 of property led to the enactment of a general law authorizing all colleges and universities to hold property with an annual income not to exceed \$250,000. Libraries are added to the list of objects for which any five or more persons of full age, citizens of the United States, a majority of whom shall be also citizens of this State, may incorporate themselves. Plattsburgh was given a normal school. New York city may spend \$300,000 for buildings and accommodations for the zoological collection in Central Park, and \$400,000 for an addition to the American Museum of Natural History. The latter amount may also be spent for completing the Metropolitan Museum of Art. In each ward of the city at least three free lectures to working men and women shall be delivered every week between Oct. 1 and April 1. Charters were granted to the Sevilla Home for the education of poor female children and Webb's Academy and Home for Shipbuilders.

The new labor laws are these: Requiring payment of wages by corporations in other currency than "store orders"; regulating wages on public works at \$2 a day; for registering trade-marks of unions.

The prison laws were codified. The convicts are divided into three classes. The first is considered corrigible, and shall be taught trades; the second is less corrigible, and is held to somewhat severe labor; the third is the incorrigible, and will be given the most severe labor. It is forbidden to have more than 100 prisoners employed in any one industry.

The most important insurance law, the "anti-rebate," provides that no life-insurance company doing business in this State shall make or permit any distinction or discrimination between individuals insured in the same class and of equal expectation of life in the amount of payment of premiums or rates charged on policies of life or endowment insurance, or in the dividends or other benefits payable thereon, or in any other of the terms and conditions of a contract it makes. Among other laws are these: For the incorporation of co-operative or assessment associations and societies for insurance upon the lives of horses, mules, jacks, and jennies; allowing cas-

ualty companies to insure the connections of steam boilers as well as the boilers themselves; providing that any number of persons not less than nine may associate themselves for the relief of beneficiaries upon the mutual-assessment plan.

The canals were voted \$600,000 to continue the work of lengthening the locks. At this rate all the locks will be lengthened in two years.

The new railroad laws are these: Permitting railroad companies to collect ten cents more than the regular fare from passengers who fail to buy tickets, such passengers to be given a receipt upon which they can secure the return of the additional money paid at any ticket office of the company; prohibiting local authorities from restricting the speed of trains below 30 miles an hour within the limits of cities of fewer than 50,000 inhabitants; exempting from the anti-car-stove law cars of foreign railroads passing for not more than 30 miles through the State; allowing railroads under 100 miles in length to begin to acquire right of way when but \$5,000 a mile is subscribed and \$3,000 a mile paid down; requiring the use of automatic freight-car couplers.

A State board of lunacy has been created consisting of three commissioners, one of whom is a physician, another a lawyer, and another a reputable citizen. The commission has the power of a court to investigate cases of alleged cruelty, etc., hitherto undertaken by the Board of Charities; and it supersedes the commissioner in lunacy. It has autocratic powers over private asylums. Another law regulates the commitment, custody, and discharge of the insane, more particularly in regard to the manner in which they shall enter institutions.

Among the new militia laws were these: Improving the Creedmoor Rifle Range and the State Camp at Peekskill; extending the system of the National Guard to a State naval militia; incorporating the Mount McGregor Memorial Association, to take charge of the cottage wherein Gen. Grant died; incorporating the Grand Army of the Republic Department of New York; providing for soldiers' monuments in Brooklyn, Troy, and Gettysburg.

Cornell University was designated as the only college in the State entitled to receive the benefits of the law of the United States relating to agricultural experiment stations; and another law establishes a State meteorological bureau and weather service at that university. The New York Dairymen's Association has been voted \$4,000 to extend dairy knowledge throughout the State; and about \$50,000 already paid into the treasury from racing associations during the past two years has been turned over to the State Agricultural Society for distribution among the county societies. Other laws are these: Establishing a license fee of \$1 instead of 50 cents on dogs, and requiring an annual registry; making the amount of tare upon bales of hops grown and sold in the State five pounds instead of six pounds; extending the time to Jan. 1, 1890, within which veterinary surgeons must register; charging the State Dairy Commissioner with the enforcement of the law to prevent deception in the sale of vinegar.

A new commission is to codify the laws relating to corporations, so as to avoid special legislation in the future. The bank department is

given more power to examine the books of banks. The penal code has been amended so that if any agent of a life or trust company shall receive any deposit, knowing that the concern is insolvent, he shall be held guilty of larceny and be fined double the amount received, together with imprisonment. Other laws were enacted as follow: Allowing any other than business corporations to hold property to the amount of \$2,000,000; allowing social clubs to hold real estate to the amount of \$500,000; forbidding pipe lines of natural-gas companies to be run through any municipality without the consent of the authorities; allowing trust funds to be invested in securities of the City of New York; allowing foreign-born children and the descendants of a woman born in the United States but disqualified by residence or marriage abroad, to hold real estate, if she has an ancestor who was a citizen of the United States; forbidding deception in articles containing trade-marks; providing that creditors may resist all transfers against the estate of a deceased person, if their claims are more than \$100 in amount; granting to a widow \$1,000 from an estate, even if the real property does not amount to that sum; for the suppression of bucket shops; allowing the Governor to proclaim any day a legal holiday, and to limit its operation to any particular county.

The Governor vetoed a bill applying high license to the larger cities of the State, and also a general bill taxing the sales of liquor. What is known as the Saxton electoral reform bill, modified from the bill of 1888 and patterned after the Australian system, was also vetoed.

Education.—For the school year ending Aug. 30, the amount expended in the State for education was \$16,691,178.24, of which there was expended for public schools \$15,876,844.91, being an increase of \$896,003.44 over the sum expended in the previous year. Of this amount \$9,798,044.79 was in the cities and \$6,078,800.12 in the towns. The number of children of school age (between five and twenty-one years) was 1,803,667, the cities having 1,029,411 and the towns 774,256. There was an increase of 32,256 children in the cities, and a decrease of 1,547 in the towns. There were employed during the year 5,549 male and 26,438 female teachers. The average annual salary of teachers in cities was \$688.65, and in towns \$270.07, the average for the State being \$418.76. There were enrolled in the public schools, 1,033,813 pupils—488,203 in the cities and 545,610 in the towns. The number of school-houses was 11,985, of which 49 were log, 10,132 frame, 1,456 brick, and 348 stone, and \$3,744,559.64 was expended for buildings.

The State tax for the support of schools is one mill on a dollar. The apportionment of the sum thus raised, \$3,460,406, is according to population. Therefore there are but three counties—Kings, New York, and Westchester—that receive back smaller sums than they pay in taxes.

The nine normal schools had a total enrollment of 6,468, and an average attendance of 4,835. The number graduated was 537 against 426 the previous year. The amount expended for normal schools during the year was \$272,581.85 against \$243,131.71 the previous year. The sum of \$80,975.52 was expended for permanent improvements to normal-school property.

Charities.—The number of insane in the State on Oct. 1, 1889, as reported by the Commission of Lunacy, was 15,507, distributed as follow: State asylums for acute insane, 2,063; State asylums for chronic insane, 3,138; State Asylum for Insane Criminals, 219; State Emigrant Hospital, 22; counties of New York, Kings and Monroe, 6,970; city almshouses, 6; almshouses of exempted counties, 385; private and quasi-public asylums, 856. This shows an increase of 593 over the number on Oct. 1, 1888.

The total number of inmates of all charitable, correctional, and reformatory institutions in the State on Oct. 1, 1889, was 67,781, against 64,322 on Oct. 1, 1888, as follow: Insane, 15,482; idiotic and feeble-minded, 1,330; epileptic, 584; blind, 627; deaf and dumb, 1,328; orphan and dependent children 20,949; juvenile offenders and delinquents, 4,765; adult reformatory prisoners, 944; sick and otherwise disabled soldiers and sailors, 973; hospital and infirmary patients, 3,782; adult and aged persons in asylums and homes for the friendless, 7,007; poor-house and almshouse inmates other than the above-named classes, 9,980.

The receipts devoted to charitable, correctional, and reformatory work in the State for the fiscal year ending Sept. 30, 1889, amounted to \$16,156,466, against \$14,591,817 for the fiscal year ending Sept. 30, 1888.

Prisons.—The number of convicts in the three prisons on Sept. 30, was 3,480, against 3,408 on Sept. 30, 1888. The highest number of convicts during the year was 3,737, in March.

The State Superintendent says, in his annual report: "By the provisions of Chapter 586 of the laws of 1888, the pursuit of usual industrial operations in the State prisons was almost wholly suspended and the increased population of the prisons was doomed to idleness in spite of the sympathetic efforts of the administrative officers. Two results were inevitable—the minor one is the greatest deficit in years, the major result is the distinct and deplorable disintegration of prison industries and deterioration of the *morale* of the prisoners as a mass and an unprecedented death rate and unequaled numerical lapse of convicts into insanity." The number of deaths was 64, and the number transferred to insane asylums, 65. The report remarks that the present law regulating prison management and labor, passed in June, 1889, had but little tangible effect on the actual operations of the prisons up to the close of the fiscal year. There were still 500 men idle at Auburn Prison and 150 at Sing Sing. The deficit for the year is \$369,274, against \$153,924 in 1888.

Banks.—The aggregate resources of all the banks in the State on Sept. 30, 1889, were \$245,163,888, and the net increase in banking capital during the fiscal year, \$2,262,000. The capital of the banks organized during the year aggregated \$2,675,000; that of the banks which closed during the year amounted to \$255,000. The increase in the capital of banks previously organized was \$300,000, and the decrease, \$100,000. Twenty-two new banks were authorized to do business during the year, with a total capitalization of \$2,675,000. Three national banks were organized in the State—the Farmers' and the Citizens', of Adams, and the Elmira National

Bank, with a total capitalization of \$315,000. On Sept. 30 there were 149 State banks.

Four new trust companies, two each in New York and Brooklyn, with an aggregate capital of \$2,500,000, have been authorized to do business during the year. On Sept. 30 there were thirty trust companies and miscellaneous corporations.

Railroads.—The report of the railroad commissioners for 1889 presents the following figures: Gross earnings of railroads, \$153,537,208.19; operating expenses, \$101,729,493.88; net earnings, \$51,807,714.31; interest charges, \$26,793,733.43; taxes paid, \$5,269,481.86; dividends, \$14,617,334.99; surplus, \$4,544,800.98; miles of road built, 7,466; stock and debt, \$1,275,883,953.58; cost of road and improvements, \$1,214,531,088.93. All these figures show a moderate increase over 1888, except in case of the surplus, which is reduced more than \$800,000.

Floods.—The effects of the May floods, almost unparalleled in our history, though not to be compared with those in Pennsylvania and Maryland, were quite serious in western New York. Among the most notable visitations was that of Elmira, the streets of which were flooded five feet deep, resulting in the destruction of many thousand dollars of merchandise. The railroad bridge, weighted by two heavy freight trains, stood the pressure, but forced the waters of the Chemung river back into the city. Late on the night of June 1, the railroad embankment gave way, carrying off the railway tracks, portions of the adjacent buildings, and lumber yards. Several lives were lost, and the people living on the flats were saved with great difficulty. The freshet at Andover submerged houses and crops for miles, and destroyed a dozen bridges in and about the town. The bursting of two mill-dams added to the danger, and people were forced to the tops of houses for safety. About ten miles of railway track were destroyed and fifteen feet of mud and *débris* were left in some cases. At Wellsville, the outer portions of the town were submerged to the eaves of the roofs. Canisteo was badly devastated and the river flooded the streets to a height of from five feet to seven feet. The merchants lost heavily by the destruction of goods. Many houses were swept from their foundations and two costly blocks were tumbled into ruins. Several people lost their lives and there were many narrow escapes from death. Though more or less ruin was wrought in other sections, the above-mentioned were the more notable instances of the havoc wrought. The loss in the State is estimated at \$500,000.

Execution by Electricity.—In 1886 a law was enacted, creating Elbridge T. Gerry, of New York, Dr. A. P. Southwick, of Buffalo, and Matthew Hale, of Albany, a commission to investigate and report to the Legislature, in January, 1887, the most humane and practical method known to modern science of carrying into effect the sentence of death in capital cases. It was provided that such report shall be in detail, accompanied by drawings and specifications of any appliance recommended by such commission for that purpose, together with the cost of construction and maintenance and probable durability. The commissioners undertook the work at once. A circular was first prepared soliciting views upon the present mode of punishment, asking

for observations made at hangings, and inquiring for suggestions in regard to a more humane method. Electricity, prussic acid or other poison, the guillotine, and the garrote were submitted. Suggestions were also invited in regard to the disposition of the body of the person executed, with a view of increasing the deterrent effect of capital punishment. The circular was widely distributed, especially among judges, district-attorneys, sheriffs, and physicians. About 200 replies came, 80 of which were against a change, 87 favored electricity, 8 poisons, 5 the guillotine, 4 the garrote, and the rest were for various methods or were non-committal. The commissioners were obliged to ask that their time be extended until January, 1888, and at that time they made an elaborate report. This began with a long description of the penalties attached to 33 offenses under the Mosaic law, and it gave an outline of 34 methods of capital punishment in use from that time to the present, as follow: *Auto da fé*, beating with clubs, beheading, blowing from cannon, boiling, breaking on the wheel, burning, burying alive, crucifixion, decimation, dichotomy, dismemberment, drowning, exposure to wild beasts, flaying alive, knout, garrote, guillotine, hanging, *harakara*, impalement, iron maiden, *peine forte et dure*, poisoning, pounding in mortar, precipitation, pressing to death, rack, running the gantlet, shooting, stabbing, stoning, strangling, suffocation. The investigation into the present methods of execution in civilized countries showed that 29 allow executions to be public, while 7 of them require privacy. The countries allowing public executions are as follow, together with the method employed: Austria, gallows; Belgium, guillotine; China, sword or cord; Denmark, guillotine; Ecuador, musket; France, guillotine; Holland, gallows; Italy, sword or gallows (abolished); Oldenberg, musket; Portugal, sword; Russia, musket, sword, or gallows; Spain, garrote; Switzerland (15 cantons), sword; Switzerland (2 cantons), guillotine. The 7 countries requiring that executions shall be private are these: Bavaria, guillotine; Brunswick, axe; Hanover, guillotine; Prussia, sword; Saxony, guillotine; Switzerland (2 cantons), guillotine. A summary shows that 10 countries use the guillotine, 19 the sword, 3 the gallows, 2 the musket, 1 the axe, and 1 the cord. The commissioners reported that the element of barbarous cruelty is so prominent in each of these methods that none of them can be considered as embodying suggestions of improvement over that now in use in this State. The chief objections to the guillotine by the commissioners were that it is too bloody and that it is associated with the scenes of the French revolution. The garrote is objectionable because physicians say the fatal screw can not be depended upon to be so quick and certain in operation that there may not be great agony on the part of the criminal. Shooting, if used in civil life would sometimes lack celerity, would require a large number of executioners, and would be demoralizing because of its tendency to encourage the populace to think lightly of the fatal use of firearms. The first objection to hanging, the commissioners reported, is, that the effect of giving stimulants to

the condemned immediately before the execution is demoralizing. The prevalence of the practice is well known even in prisons where criminals are debarred from alcoholic drinks. When the Anarchists were hanged in Chicago, the county physician, at the suggestion of the sheriff, asked them to take stimulants. Another objection to hanging is the danger of an attempt by the condemned man to commit suicide, and of some horrible scene afterward. There are four cases on record where men who had cut their throats just before the time of their execution arrived, were hanged. Still another objection to this form of punishment is the public horror and revulsion against hanging women. The electric current is one hundred times as rapid as the nerve force, and resuscitation after the passage of such a current through the body and functional centers of the brain is impossible. The current, if applied to the brain, would deaden that organ before any sensation could reach it. A chair with metal plates at the head and foot-rests would be necessary, electrodes being connected with each rest. If the current of electricity were supplied from electric-light wires, the chair and wires could be easily connected. The cost of maintenance and operation would be merely nominal. It was recommended that electric appliances be placed in the prisons at Sing Sing, Auburn, and Dannemora. In regard to the time of execution and the disposition of the body of a criminal, the commissioners had definite views. They say he ought to be doomed from the hour of his sentence, kept by himself in prison, and executed on a day to be set by the warden, while opportunity for the display of sentiment ought to be curtailed to the furthest extent. His body should not be paraded like that of a hero, but should belong to the authorities for dissection or destruction; or, if it is given to the family, the law should forbid them to exhibit it. The commissioners believe that by shutting a criminal out from the world from the time of his sentence, leaving him from that moment to the sternness of the law, with the knowledge that only punishment was in store for him, capital crimes would be more effectually deterred than by any other means. Criminals meet death with bravado when they contemplate elaborate descriptions of their demise in the newspapers, and public funerals afterward; and the effect is to diminish the horrors of crime and hanging. The commissioners also described several experiments with electricity as a means of destroying animals; and they quoted an opinion from Thomas A. Edison, that dynamo-electric machinery which employs intermittent currents would be the most suitable apparatus. The passage of the current from these machines through the body, even by the slightest contact, causes instant death.

The commissioners added to their report a bill, which became a law in 1888, to take effect on Jan. 1, 1889, and to apply to all convictions for crimes punishable by death, committed on or after that date. It was provided that the punishment of death must be inflicted by causing a current of electricity to pass through the body of the convict, and the application of such current must be continued until such convict is dead; and that the punishment of death must be in-

flicted within the walls of the State prison designated in the warrant, or within the yard or inclosure adjoining thereto. The existing laws were amended so that the warden, or other person in charge of the State prison, should have the control of the execution, instead of the sheriff of the county in which the criminal is confined. It is the duty of the agent and warden to be present at the execution, and to invite the presence, by at least three days' notice, of a justice of the Supreme Court, the district attorney, and the sheriff of the county wherein the conviction was had, together with two physicians and twelve reputable citizens of full age, to be selected by said agent and warden. Such agent and warden must, at the request of the criminal, permit ministers of the Gospel, priests, or clergymen of any religious denomination, not exceeding two, to be present at the execution; and, in addition to the persons designated above, he may also appoint seven assistants or deputy sheriffs who may attend the execution. He shall permit no other person to be present at such execution except those designated. Immediately after the execution an examination of the body of the convict shall be made by the physicians present, and their report in writing, stating the nature of the examination so made by them, shall be annexed to a certificate and filed therewith. After such examination the body, unless claimed by some relative of the person executed, shall be interred in the graveyard or cemetery attached to the prison, with a sufficient quantity of quick-lime to consume such body without delay; and no religious or other services shall be held over the remains after such execution, except within the walls of the prison where said execution took place, and only in the presence of the officers of said prison, the person conducting said services, and the immediate family and relatives of said deceased prisoner. No account of the details of any such execution, beyond the statement of the fact that such convict was, on the day in question, duly executed according to law at the prison, shall be published in any newspaper. It is made a misdemeanor to violate, or neglect to comply with, any provision of this law.

In November, 1888, a special committee of the Medico-Legal Society of the United States, appointed to investigate as to the best method of executing criminals by electricity under the new law, reported that a stout table, covered with a rubber cloth and having holes along its borders for binding-posts, or a strong chair should be procured. The prisoner, lying on his back, or sitting, should be firmly bound. One electrode should be so inserted into the table or into the back of the chair that it will impinge upon the spine between the shoulders. The head should be secured by means of a helmet fastened to the table or the back of the chair, and to this helmet the other pole should be so joined as to press firmly with its end upon the top of the head. The committee preferred the chair to the table. The instrument for closing the circuit can be attached to the wall. The electrodes should be of metal, not over one inch in diameter, somewhat ovoid. The skin and hair at the point of contact should be thoroughly wet with warm water. The hair should be cut short. A dynamo generating an electro-motive force of at

least three thousand volts should be used. The alternating, as against the continuous, current is preferred. The current should be allowed to pass thirty seconds.

The first conviction under the new law took place early in 1889, and the convict was sentenced to be put to death by electricity in the State prison at Auburn. His counsel at once procured a writ of *habeas corpus* from Judge Dwight, of the Supreme Court, requiring the warden of the prison to produce the prisoner's body before Judge Day, County Judge of Cayuga County, June 18. The petition upon which the writ was granted alleged that the convict was sentenced to undergo a cruel and unusual punishment, and the counsel also asked that testimony to establish this point might be taken before a referee. Such testimony was taken at great length, the counsel confining himself to the form of punishment, and not to the scientific points in the case. Thomas A. Edison, who was summoned among other witnesses, testified that an electric current of sufficient power would inflict an instantaneous and painless death every time it was tried. The Attorney-General appeared for the people, to sustain the law. A portion of his brief was devoted to electricity as a science; and the following laws were claimed to have been established: 1. Electricity moves in a circuit. 2. Ohm's law—the intensity of the current in ampères is ascertained by dividing the electromotive force, expressed in volts, by the resistance, expressed in ohms. 3. When two paths are offered to an electric current, it divides and follows both, proportionately to their respective conductivities. 4. Joule's law, or the law of heat. In October, 1889, Judge Day filed his decision in the case. In substance, he said: The question of the constitutionality of this law is of importance; for, apart from any other consideration, should it ultimately be held to be unconstitutional, not only may the condemned possibly escape punishment, but all other persons committing capital crimes since the beginning of the current year may likewise go unpunished, inasmuch as it is expressly provided that after it takes effect, a crime punishable by death must be punished according to its provisions, and not otherwise, and it is clear that any penal act hereafter passed to apply to these cases would necessarily and justly be held void, as *ex post facto*, and it is a question of novelty, there is no precedent, and its final decision is awaited with interest. It was to be expected, as the result has proved, that the testimony before the referee would be conflicting, and in great degree speculative and hypothetical; for on no person has the experiment yet been tried, and no endeavor to take human life by electricity has been made, under the circumstances and conditions, and with the appliances indicated by scientific knowledge as those most favorable to produce a fatal result. Back of all other questions lies another, "What is the duty of courts and judicial officers when called upon to declare, in a case like this, a legislative act void as against the Constitution, and by what rules should they be governed?" The power of the State over crime is committed by the Constitution to the Legislature, without a definition of any crime. The case then went to the General Term of the Supreme Court,

where it has not yet (December, 1889) been passed upon. Whether it is decided in favor of or against the convict, an appeal will be taken to the Court of Appeals, where it will probably be decided in 1890.

New Jersey has a law requiring that executions shall not be as public as they are in nearly all of the other States. The new law in New York was introduced in the legislative body of France, but nothing further was done with it. Germany is also discussing the question.

A curious phase of the old system of hanging was shown in June, 1889, when a charter was granted to the American Execution Company, in Chicago, to execute persons who are sentenced to death. The incorporators' idea is to employ competent executioners and open communication with all the sheriffs in the United States, guaranteeing that there will be no bungle, such as characterized the Bald-Knobbers' execution. Shrouds, coffins, etc., will be furnished, and also any style of apparatus—hempen, electrical, or whatever is asked.

Political.—On Sept. 4 a State Convention of Prohibitionists met at Syracuse, and nominated the following candidates for State offices, to be filled by election this year: For Secretary of State, Jesse H. Griffin; Comptroller, Benjamin L. Rand; Treasurer, Joseph W. Bruce; Attorney-General, C. A. Hart; State Engineer and Surveyor, Alpheus B. Kenyon; Judge of the Court of Appeals, W. J. Farrington. The platform contains the following declarations:

That local option has proved unsatisfactory, being too local and two optional. In the future, as in the past, we will, where the question is presented, vote for no license, but we refuse to accept local option as a substitute for the policy of prohibition.

We recognize the duty of the coming Legislature to submit to the electors of the State an amendment to the Constitution prohibiting the liquor traffic, but, as the political machinery of both the old parties and almost the entire press of these parties in every recent contest have been combined for the defeat of prohibition, we protest against any such submission by any political party whose only purpose is prohibition defeat; and we further declare that, if the amendment is submitted in this State, the Prohibition party will make every possible effort to secure its adoption.

The Republican State Convention met at Saratoga on Sept. 25, and nominated for Secretary of State, John I. Gilbert; Comptroller, Martin W. Cooke; Treasurer, Ira M. Hedges; Attorney-General, James M. Varnum; State Engineer and Surveyor, William P. Van Rensselaer; Judge of the Court of Appeals, Albert Haight. The platform contained the following:

We commend the action of the successive Republican Legislatures in enacting wise and beneficent public measures, including the law taxing collateral inheritances, which has already relieved the burdens of taxation by over \$2,000,000; the law taxing incorporation, which produces \$200,000 annually; the law making employes first preferred creditors in assignments; the law providing for the proper discipline and employment of convicts; and the law protecting the products of the farm and dairy.

We arraign Gov. Hill as a public enemy for defeating by his vetoes the following measures of legislation: The Enumeration bill, twice passed in obedience to the requirement of the Constitution; the Constitutional Convention bill, passed in pursuance of an overwhelming vote of the people; the Anti-Bribery bill, to prevent the corruption of voters and the in-

timidation of employés at elections; all measures for excise revision and reform, notwithstanding their approval by prominent men of all political parties; the Ballot Reform bill, twice passed, to secure a pure and untrammelled ballot; the Liquor Tax bill, twice passed, which would have lightened the burdens of taxation on homes and farms to the extent of \$3,000,000 annually—all of which measures were passed by Republican Legislatures in response to the demand of an enlightened and patriotic public sentiment. We denounce these vetoes as being subversive of the rights of the people's representatives, and as being autocratic and revolutionary.

We urge the continuance of efforts to render impossible improper combinations and conspiracies known as "trusts."

The Democratic State Convention was held at Syracuse on Oct. 1. It renominated Comptroller Wemple, Attorney-General Tabor, and State Engineer and Surveyor Bogart. For Secretary of State the nominee was Frank Rice; for State Treasurer, Elliot F. Danforth; and for Judge of the Court of Appeals Denis O'Brien. The platform contains the following:

Maintaining, as heretofore, that improper combinations of capital which limit production, fix the price of commodities, regardless of the cost of production, reduce the wages of labor and crush out the smaller independent dealer, and thus strangle legitimate competition, are conspiracies; we demand legislation to prevent such combinations. We point to the fact that while the last two Republican Legislatures have defeated all additional legislation desirable for their complete suppression, the legal department of the State, under Democratic administration, has instituted and carried to a successful issue litigation having the destruction of such conspiracies as its aim.

We arraign the late Republican Legislature for imposing the heaviest State taxes in both rate and amount since 1875.

We commend the vetoes of a Democratic Governor, which have saved to the tax payers of the State \$200,000.

We do not favor the unrestricted sale of intoxicating liquors on the one hand, nor prohibition on the other. We believe that the liquor traffic should be restrained and regulated by just and equitable excise laws, rigidly enforced, which laws in their operation should be substantially uniform throughout the State. We arraign the Republican party for its dishonest treatment of the temperance question.

We demand such changes in our election laws as will more effectually promote the secrecy of the ballot, stop corruption at the polls, and prevent the intimidation and corruption of electors.

We believe in home rule for cities.

We favor a revision of the tax laws, whereby personal and corporate property shall be made to bear their full and just burdens.

There was also a ticket in the field, nominated by the Labor party, which obtained, however, but few supporters.

At the November election all candidates on the Democratic ticket were elected. For Secretary of State, Rice received 505,894 votes; Gilbert, 485,367; Griffin, 26,763; and Beecher, Labor, 753; plurality for Rice, 20,527. For Judge of the Court of Appeals, O'Brien received 503,269 votes; Haight, 487,567; Farrington, 25,236; plurality for O'Brien, 15,702. The plurality of Wemple for Comptroller was 11,190; of Danforth for Treasurer, 13,955; of Tabor for Attorney-General, 10,711; of Bogart for State Engineer and Surveyor, 16,981. For members of the Legislature of 1890, the Republicans elected 19 Senators and the Democrats 13; the Republicans 71

members of the Assembly and the Democrats 57. This is a gain of one Senator and 8 Assemblymen for the Democrats.

At the same time a special election was held in the Ninth Congressional District to fill the vacancy caused by the death of Samuel S. Cox. There was no candidate in opposition to Amos Cummings, Democrat, who received 15,508 votes out of a total of 15,559 votes cast. A special election was also held in the Twenty-seventh District to select a successor to Congressman N. W. Nutting, resigned, at which Sereno E. Payne, Republican, received 20,794 votes; Hopkins, Democrat, 13,249 votes; and Mills, Prohibitionist, 536 votes. On Nov. 30, at a special election in the Sixth District to select a successor to Congressman Frank J. Fitzgerald, resigned, Charles H. Turner, Democrat, received 6,811 votes; George W. Collier, Republican, 1,149 votes; Michael Hines, Prohibitionist, 191 votes; and John J. Haley 123 votes.

NEW YORK CITY. Government.—The city officials who took office on Jan. 1, 1889, are: Mayor, Hugh J. Grant, Tammany Democrat (salary \$10,000); President of the Board of Aldermen, John H. V. Arnold (salary \$3,000); Register, James J. Slevin (salary \$12,000); Sheriff, James A. Flack, (fees).

Finances.—The city debt was increased during 1889 by \$7,349,936.94. This increase is due to extraordinary expenses which the city was compelled to meet, among which the cost of the new parks was the greatest. A list of the bonds issued to meet these expenditures is herewith given:

For new parks in the Twenty-third and Twenty-fourth wards, Westchester County.....	\$9,057,000 00
Improvement of old parks in the city	176,000 00
New aqueduct.....	1,600,000 00
Other Croton water work	200,000 00
School houses and sites	1,217,582 55
Repaving streets and avenues	1,000,000 00
Street improvements, regulating, grading, building sewers, etc.....	618,000 00
Docks, slips, and improvements of water front (dock bonds)	750,000 00
Completion of Washington Bridge over Harlem river.....	385,100 00
New armories	163,500 00
New criminal court-house.....	10,000 00
Museums of Art and Natural History buildings	260,000 00
Total	\$15,437,132 55

Almost the entire proceeds of the bonds issued this year have been devoted to the purchase of permanent improvements.

The tax rate for 1889 was but 1.95 per cent., against 2.22 for 1888.

For the first time in the history of any political body, whether Federal, State, or municipal, republican or monarchical, the obligations of this municipality, bearing 2½ per cent. interest, have been sold at a premium in the open market.

The City Chamberlain is Richard Croker (salary \$25,000) who succeeded William M. Ivins on April 10. His report is as follows:

Balance, Jan. 1, 1889	\$13,115,918 25
Cash receipts, Jan. 1, 1889, to Dec. 27, 1889....	95,877,928 08
Cash payments	96,840,203 01
Cash receipts, April 10, 1889, to Dec. 27, 1889..	84,303,547 47
Cash payments	80,159,165 33
Interest on bank balances received in eleven months of 1889 and credited to sinking fund.	161,861 11

In the Finance Department Comptroller Theodore W. Myers (salary \$10,000) signed 27,237

warrants to pay \$70,069,729.16. The receipts were \$69,876,324.04, and from this amount \$32,735,493.78 was from taxes, and of this \$27,343,000 was from taxes of 1889. The total funded debt of the city on Dec. 27, 1889, was \$140,698,128.01, and the total increase of the funded debt is \$8,253,032.55.

The amount of fees received at the register's office during 1889 was \$115,510.65. The expenses of the office were \$124,500 and the increase in conveyances and mortgages during the year was 5,612.

Board of Estimate and Apportionment.—

This body includes the Mayor, the Comptroller, the President of the Board of Aldermen, and the President of the Department of Taxes and Assessment.

The following are the amounts allowed for 1890: Mayoralty, \$26,000; Common Council, \$76,800; Finance Department, \$284,500; State taxes, \$4,519,641; interest on city debt \$5,305,819; redemption of principal of the city debt, \$1,080,617; armories and drill rooms—rents, \$50,250; rents, \$130,572; judgments, \$150,000; Law Department, \$199,200; Department of Public Works, \$3,216,215; Department of Public Parks, \$1,120,700; Department of Public Charities and Correction, \$1,949,100; Health Department, \$392,200; Police Department, \$4,647,791; Department of Street Cleaning, \$1,255,835; Fire Department, \$2,138,543; Department of Taxes and Assessments, \$118,800; Board of Education, \$4,224,417; College of the City of New York, \$147,000; The Normal College, \$125,000; advertising, printing, stationery, etc., \$246,700; Municipal Service Examining Board, \$25,000; coroners' salaries and expenses, \$53,855; commissioners of accounts, \$27,500; the sheriff, \$65,700; the register, \$125,650; Bureau of Elections, \$315,119; preservation of public records, \$49,200; miscellaneous, \$209,072; fund for street and park openings, \$204,247; salaries—city courts, \$382,900; salaries—judiciary, \$1,068,840; charitable institutions, \$1,215,311; total, 35,148,097. Deduct general fund, \$3,646,960. Total, \$32,501,137.

Law.—The work in this division is divided among four offices, whose chiefs are: Counsel to the Corporation, William H. Clark (salary, \$12,000); Public Administrator, Charles E. Lydecker (salary, \$4,000); Attorney for Collection of Arrears of Personal Taxes, Henry Bischoff, Jr. (salary, \$4,000); and Corporation Attorney, Louis Steckler (salary, \$4,000). During 1889 there were begun in the office of the Counsel to the Corporation 672 actions and special proceedings. Of old actions and special proceedings begun prior to Jan. 1, 1889, there were terminated during the year 844. One hundred and ninety-four new actions and special proceedings begun since Jan. 1, 1889, were terminated during the year. The collections of money by the Counsel to the Corporation amounted in the aggregate to \$326,843.65.

Public Works.—This division of the city government is under the charge of a commissioner appointed by the Mayor, independent of the Board of Aldermen, for a term of four years. The present incumbent is Thomas F. Gilroy (salary, \$8,000). There are nine sub-bureaus as follow: 1, for laying water pipes, constructing

sewers, walls, and hydrants, paving streets, etc.; 2, for the collection of revenue from the sale and use of water; 3, for the care of all property connected with the supply of Croton water; 4, for grading, flagging, curbing, and guttering the streets; 5, for lamps and gas; 6, for streets and roads; 7, for repairs of and supplies to public buildings, etc.; 8, for the removal of incumbrances; 9, for the care of sewers.

The annual report of the department contains the following data:

On appropriation account for 1889	\$2,960,678 88
On local improvement fund	1,088,874 78
On Croton water fund	257,124 98
On special fund for restoring pavements	33,807 95
On revenue bonds for water meters	12,745 85
Total	\$4,353,281 84

During the year 302 contracts were entered into at a total estimated cost of \$3,934,513.28. The number of contracts completed during the year was 291; total cost, \$2,128,834.62. As to the water supply, the report says: The water service has been extended by laying 16 miles of additional water mains, making 654 miles of distributing mains now in use. The city now receives 96,000,000 gallons of water a day from the Croton Aqueduct.

The report sets forth that 212,341 square yards of pavement have been relaid. In the extension and improvement of the sewerage system 28,279 lineal feet of sewers, 1,274 lineal feet of culverts, and 46 receiving basins were built, and the sewerage system on Manhattan Island now includes 433.73 miles of sewers, with 5,209 receiving basins.

There are in use on the streets, parks, places, docks, and bridges of the city 23,604 gas lamps, 1,331 electric lights, and 126 naphtha lamps.

The Park Department received \$1,120,000 for expenses from the Board of Estimate and Apportionment besides the acquisition of title to the new park lands in the annexed district. Arrangements have been made for sinking the tracks of the Port Morris branch of the New York and Harlem River Railroad, and for the extensions of the Metropolitan Museum of Art and the American Museum of Natural History.

The figures of the Street-Cleaning Department are as follow: Expenses, full amount of appropriation, \$1,272,040; income, trimming scows, etc., \$57,250. Of ashes and garbage, 1,148,249 cartloads were collected. There were 350 miles of paved street swept many times, equal to 52,112 miles swept once. Of these, 25,258 miles of the sweeping was done within the territory south of Fourteenth Street, and this shows that all the paved roadways—about 125 miles—of that district have been swept on the average 200 times during the year.

Vital Statistics.—The Board of Health consists of the President of the Board of Police, the health officer of the port, and two commissioners, one of whom must have been for five years a practicing physician. The commissioner that is not a physician is the president of the board. The commissioners are as follow: President, Charles G. Wilson (salary \$5,000); Dr. Joseph D. Bryant (salary, \$4,000); Health Officer, William M. Smith; and President of the Board of Police, Charles F. MacLean. During 1889 the vital statistics were as follow:

	1889.	1888.
Deaths under one year	10,527	10,411
Deaths under five years	17,152	17,358
Total deaths	39,679	40,175
Total reported births	37,527	36,136
Total reported marriages	14,400	14,533
Total reported still-births	8,349	8,239
Death-rate per 1,000 living	25.19	26.24

The estimated population of New York city was as follows: July 1, 1889, 1,575,073; July 1, 1890, 1,622,237; for the week ending Dec. 23, 1889, 1,594,649. These estimates are determined from the proportional increase between the State census of 1875 and the national census of 1880. From July 1, 1889, to Jan. 1, 1890, the weekly increase of the population was estimated at 898.

There are four coroners in New York, elected by the people, and each is allowed to appoint a deputy, who is always a physician. During the year Michael J. B. Messemmer, Ferdinand Levy, Daniel Hanly, and Louis W. Schultze were coroners, and for their services each received \$5,000. To them 4,306 cases were sent for investigation. Of these 3,341 were of deaths due to natural causes and 965 were matters for investigation. There were 51 homicides and murders. The accidents numbered 732. There were 182 suicides. During the latter part of the year the city was visited by an epidemic of influenza, and during its prevalence the death-rate was very greatly increased by its seizure of persons in failing health or those of advanced years. Indeed, at no time, even when the cholera was prevalent, had the mortality been so high. (See INFLUENZA, EPIDEMICS OF.)

Fire Department.—This is under the control of three commissioners—Henry D. Purroy, president, S. Howland Robbins, and Anthony Eickhoff (salary, \$5,000). The headquarters of the department is at 157 East Sixty-seventh Street, and the chief is Hugh Bonner (salary, \$5,000). The report for 1889 shows that the number of officers and men attached to the department is 1,027, and the apparatus of the force consists of 89 engines, 2 fireboats, and 37 hook-and-ladder trucks, the whole being handled by 56 engine companies and 20 hook-and-ladder companies, with the aid of 363 horses. There were 3,016 alarms and 2,861 fires during the year, of which but 21 spread outside of the building in which the fire originated. The estimated loss on structures was \$1,152,694 outside of \$20,578,395 covered by insurance; on contents, \$2,929,062; insurance, \$14,123,113. The average loss to each fire was \$1,451.03, or \$254.26 less than in 1888. The Bureau of Inspection of Buildings reports 2,628 applications for new buildings, with an estimated cost of \$69,296,372. This, however, includes 590 stands for the centennial parade, costing \$63,471.

Police.—This department is under the supervision of four commissioners, who are appointed for a term of six years each by the Mayor. They receive an annual salary of \$5,000. They are Charles F. MacLean, president; John McClave, John R. Voorhis, and James J. Martin. The city is divided into 35 precincts and one sub-precinct, each of which is under the command of a captain. The superintendent of police is William Murray (salary, \$6,000), and under him is a force of 4 inspectors, 18 surgeons, 36 captains, 158 ser-

geants, 40 detective sergeants, 163 roundsmen, 2,922 patrolmen, and 78 doormen; total, 3,420. The number of arrests made during 1889 was 82,378, against 85,049 for 1888.

Electrical Control.—This body consists of three commissioners—Theodore Moss, Jacob Hess, Daniel L. Gibbens—and the Mayor. Their report for 1889 contains the following information: The subways are comparatively free from moisture and gases. The question of ventilation is receiving attention. In all of this year's construction a six-inch pipe for the purpose of ventilation has been put into each manhole, forming a continuous and open channel for the forcing in of fresh air and the forcing out of gases and vapors. The construction of subways up to Jan. 1, 1890, is as follows:

SERVICE.	Miles trench.	Miles duct.
Telephone and telegraph	28	508
Electric light	29	454
Edison	16	50
Total	73	1,007

This construction will accommodate approximately 45,000 miles of telephone and telegraph wires, and 2,000 miles of electric-light wires. There are 12,308 miles of electrical conductors now in the subways, and, in addition, 2,000 miles of telegraph wire are being operated in cables on the elevated railroads.

Meteorological.—According to the weather tables for the year 1889, prepared by Daniel Draper (salary, \$2,500), Director of the New York Meteorological Observatory, Central Park, it appears that, though the year was an unusual one for rainfall and temperature, the climate was equable. The average temperature was 52.65° Fahr. The warmest day was June 9, when the thermometer indicated 91° at 4 P. M. The coldest day was Feb. 24, when the thermometer indicated 3° at 6 A. M. There was no zero weather, and only on two days (June 9 and May 10) in the year was 90° touched. The total waterfall for the year was 57.16 inches. Rain fell on 123 days of the 365, and snow fell on 13 days. The aggregate snowfall was 21 inches.

Education.—The board having control of this subject consist of 21 commissioners, who are appointed by the Mayor, and who serve without salary. Its president is J. Edward Simmons. The city superintendent of schools is John Jasper (salary, \$7,500). Under his jurisdiction there were, during the year, 225 schools or departments, in which 148,881 pupils were taught. The average cost for each pupil in the primary schools for the year 1889 was \$15.71, and of those in the grammar schools, \$30.11. In addition to the public schools, a nautical school and 48 so-called corporate schools, consisting of industrial schools, reformatories, orphan asylums, etc., are cared for by the Board of Education.

During the year bonds were issued for the erection of new school-houses amounting to \$1,217,532.55. The Board of Estimate and Apportionment has appropriated for the employment of additional teachers and for the rent of new school-houses during the coming year the sum of \$188,000.

Immigration.—Nine commissioners, six of whom are appointed by the Governor, and the

other three are the Mayor of the city, the President of the Irish Emigrant Society, and the German Society *ex officio*, have control of the immigrants arriving at this port. During 1889 315,228 passengers were landed at Castle Garden, against 383,595 for 1888, a decrease of 68,367. Of the passengers for the past year 298,085 were immigrants, while the others were natives or citizens of the United States. The number of immigrants who arrived during 1888 was 370,822. The nationalities of the immigrants are as follows: Ireland, 40,790; England, 29,051; Wales, 616; Scotland, 6,719; Germany, 69,809; France, 4,432; Russia, 27,327; Poland, 2,875; Switzerland, 6,752; Sweden, 24,842; Norway, 2,167; Holland, 5,283; Italy, 27,216; Spain, 88; Portugal, 18; Denmark, 6,967; Hungary, 8,889; Austria, 13,656; Bohemia, 4,897; Australia, 15; Turkey, 260; Greece, 103; all others, 899.

Political.—The election of 1889 was held on Nov. 5. The following local officers were elected: Frank T. Fitzgerald, Register; John H. V. Arnold, President of the Board of Aldermen; Henry Bischoff, Jr., Judge of the Court of Common Pleas; James Fitzgerald, Judge of the Court of General Sessions; Charles J. Nehrbas and Robert A. Van Wyck, Justices of the City Court. Amos J. Cummings was elected to Congress to fill the seat made vacant by the death of Samuel S. Cox. A new Board of Aldermen was chosen, of whom 19 are Tammany, 2 county Democrats, and 4 Republicans. Frederick Smyth was elected to the office of recorder. Subsequently a special election was held, on Nov. 30, to choose a member of Congress for the Sixth District, to fill the place made vacant by the resignation of Frank T. Fitzgerald (elected to the office of register). Charles H. Turner was elected by a vote of 6,811 out of a total of 8,433 votes. The local elections confirmed the power of Tammany Hall in New York city, and that organization has been still further strengthened in its control by the appointment to office, by the Mayor, of members of that organization to various boards upon which custom had dictated the selection of representatives from all public factions.

The Washington Centennial.—The one hundredth anniversary of George Washington's first inauguration was celebrated with unusual ceremonies on April 29, 30, and May 1, in New York city. This event, witnessed by more than a million visitors, was the last of the series of American centennial celebrations that began in 1875 with that of the Battle of Lexington. The initiative for this celebration was taken by the New York Historical Society, at a meeting held on March 4, 1884, when it was resolved to celebrate "the Centennial Anniversary of the Inauguration of George Washington," and a committee was appointed to report a plan "for the commemoration of the most important event in the history of the city, the State, and the nation." In March, 1886, the Chamber of Commerce adopted similar resolutions, and designated a committee to report as to what steps should be taken. They recommended that April 30, 1889, be made a national holiday; that Congress be asked to appropriate money for the celebration; and that the co-operation of the Governor of New York, the Mayor, aldermen, and citizens of that city, and the Governors of all the States be invited.

Subsequently a committee of twenty-five was appointed, with James M. Brown as chairman. The citizens then took the matter in hand and issued a call that resulted in a meeting on Nov. 10, 1887, under the presidency of Mayor Abram S. Hewitt, when, with representatives from the Historical Society, a general committee of two hundred members was formed, of which Hamilton Fish became president, and Clarence W. Bowen permanent secretary. An executive committee was then chosen, of which Elbridge T. Gerry was made chairman and Mr. Bowen secretary. Under their supervision the celebration was organized, of which the work was divided among the following sub-committees: No. 1, Plan and Scope, Hugh J. Grant, chairman; No. 2, States, William G. Hamilton, chairman; No. 3, General Government, John A. King, chairman; No. 4, Army (military and industrial parade), S. Van Rensselaer Cruger, chairman; No. 5, Navy, Asa Bird Gardiner, chairman; No. 6, Entertainment, Stuyvesant Fish, chairman; No. 7, Finance, Brayton Ives, chairman; No. 8, Railroads and Transportation, Orlando B. Potter, chairman; No. 9, Art and Exhibition, Henry G. Marquand, chairman; and No. 10, Literary Exercises, Elbridge T. Gerry, chairman. Invitations were sent to the President and the Vice-President of the United States, the members of the Cabinet, and the Governors of the States, and also to distinguished citizens in all sections of the Union. The State appropriated \$225,000 for the celebration, of which \$150,000 was for the transportation and provisioning of the National Guard, \$20,000 for the Grand Army of the Republic, and \$55,000 for the use of the committee. The principal thoroughfares of the city were brilliantly decorated with the national colors, and three triumphal arches were erected on Fifth Avenue, under which the processions passed. One of these, designed by Stanford White, is to be permanently reproduced in stone, at an expense of over \$100,000, and is to stand at the head of Washington Square, facing Fifth Avenue. The homes of citizens rivaled each other in the beauty of their decorations, and even in the poorer and remote districts flags were displayed and windows draped in red, white, and blue. President Harrison and his party left Washington at ten minutes after midnight Monday, and reached Elizabeth, N. J., at 7.25 the same morning.

The First Day.—The celebration began with a review by the President in Elizabeth of about 4,000 men, including militia, members of the Grand Army of the Republic, and various civil organizations. Then entering a carriage he was driven over the same route followed by Washington a hundred years ago to Elizabethport. In his progress to the water side he had to pass under a living arch whose outlines were the forms of forty-nine young girls in white, who held banners, representing the States and Territories of the Union, and as he passed they flung down upon him showers of roses, thus reproducing a feature of Washington's reception when on his way to be inaugurated. At Elizabethport the President, Vice-President, and Members of the Cabinet were taken on board of the United States steamer "Despatch," and the ladies, the Governors, and committee-men embarked on the steamboats "Sirius," "Erastus Wiman," and

"Monmouth." Amid the booming of guns, the screeching of steam whistles, the waving of flags, and the cheering of the people, both on the boats and on shore, the party set out for New York city. Meanwhile in the upper bay the finest naval display ever seen in its waters was being formed. From Bedlow's Island to Robbin's Reef were ranged in parallel rows the participating vessels. Anchored in line nearest the city were the representatives of the new navy and the old historic men-of-war beginning with the flag-ship "Chicago," and followed by the "Kearsarge," "Yantic," "Essex," "Brooklyn," "Atlanta," "Jamestown," "Juniata," "Yorktown," and "Boston"; then came the revenue division and harbor tugs, ending with the yachts, including those from the New York, Atlantic, Corinthian, Seawanhaka, American, and Larchmont clubs headed by the steam yacht "Electra." Back of these and in front of them was the merchant marine arranged in double columns. The Government vessels were trimmed with a rainbow decoration of flags reaching over the mast tops from bow to stern, and the other vessels were resplendent with colors and flags. The entire fleet, divided into ten squadrons, was commanded by Admiral David Porter of the United States navy. About noon the clouds threatening rain cleared, and the sun came out, shining in full glory on the scene. Soon the blue flag of the President was seen on the "Despatch," emerging from the Kills, and swiftly the boat made its way between the two lines up the bay in front of the city to the pier at the foot of Wall Street on East river. As the boat passed the naval vessels, the yards were manned and the salute of twenty-one guns, in honor of the President, fired while the colors were dipped. The banks of smoke soon obscured the view, and when they had passed away the "Despatch" was anchored off Wall Street. Here the President was met by a barge manned by twelve retired sea-captains, all members of the New York Marine Society, and commanded by Capt. Ambrose Snow, and rowed ashore, where he was received by Hamilton Fish, attended by Gov. David B. Hill and Mayor Hugh J. Grant. A procession, commanded by Col. Floyd Clarkson, including several companies of regulars, veteran military organizations, and members of the Society of the Sons of the Revolution, escorted the President to the Equitable Building, 120 Broadway, where a reception was held in the rooms of the Lawyers' Club, and upward of 2,000 persons—citizens of distinction who were specially invited—were presented to him, including visiting governors of thirty States and Territories, who were introduced to him in the order in which the States or Territories that they represented were admitted into the Union. After an elaborate luncheon, presided over by Hamilton Fish, the procession reformed and escorted the President up Broadway to the City Hall. In front of this building were ranged double rows of girls, two from each of the female grammar schools, and thirteen young ladies, representing the original States, from the New York Normal College. As the President alighted from the carriage and advanced up the steps between the girls, flowers were strewed in his pathway, and on reaching the inside of the building he was received with an address of welcome from a member of the senior

class of the Normal College. Passing into the Governor's room, and supported by the Governor and the Mayor, the President received the people of the city, of whom more than 5,000 passed before him. At 5 o'clock the doors were closed and Mr. Harrison was driven to the residence of the Vice-President, whose guest he was, and on that evening he was entertained at a dinner given in his honor by Stuyvesant Fish. The festivities of the day closed with a grand ball at the Metropolitan Opera House, where the President arrived after ten o'clock, and the ceremonies then began with a quadrille of honor, in which it was intended that only those should join who were descended from participants in the similar dance led by George Washington the week after his inauguration. Under the broad bands of red, white, and blue cloth that fell in luxurious curves from the center of the ceiling to the uppermost gallery of this most beautiful building were gathered more than 10,000 people. Representatives of families whose names are identified with the history of the country, men of reputation in every art, science, and trade, and woman of surpassing beauty made this audience the most distinguished one ever seen in the great metropolis of the new world.

The Second Day.—This day, the actual anniversary of the inauguration, opened with artillery salutes at sunrise. The exercises pertaining to the celebration began with a special religious service in St. Paul's Chapel, where the President and Vice-President were received by the two wardens, Stephen P. Nash and Allan Campbell, and escorted to the pew which Washington occupied during his residence in New York city. A form of prayer and thanksgiving was prepared for this service. Only those specially invited were able to gain access to the chapel, and they were received by an aisle committee whose members were descendants of families of historic prominence. Ex-Presidents Hayes and Cleveland, members of the Cabinet, Senators, the chief officers of the New York State and municipal governments, governors of States, Gen. Sherman, and citizens of distinction were present. As President Harrison entered the chapel the congregation rose to their feet, and, in respect, after the exercises, they remained seated until he had left the building. Rev. Morgan Dix, the rector of the parish, began the services by reading several selections from the Holy Scriptures, and the lessons were read by Bishop Littlejohn of Long Island and Bishop Quintard of Tennessee. Then followed the address, by Bishop Potter of New York, and the closing prayers were read by Rev. James Mulchahey, the rector of the chapel. Meanwhile, similar services of an appropriate character were held in other churches by their respective clergy. The purely literary exercises followed at the United States Sub-Treasury, on the corner of Wall and Nassau Streets; a platform had been erected over the very spot where Washington took the oath of office a century ago. The same chair in which he sat was there, and the same Bible on which he was sworn was likewise there on a table once owned by Chancellor Livingston, and now the property of his descendants. A vast multitude of people were gathered to witness the ceremonies, and on the platform was the venerable Ex-Vice-President

Hannibal Hamlin and Chief-Justice Fuller, besides the visitors of distinction who had followed the President in carriages from St. Paul's Chapel. The assembly was called to order by Hamilton Fish, who presented the chairman of the occasion, Elbridge T. Gerry. A prayer was then offered by Rev. Richard S. Storrs, after which Clarence W. Bowen read a poem entitled "The Vow of Washington," written by John G. Whittier for the occasion, and then followed an oration by Chauncey M. Depew. When this was delivered Mr. Gerry introduced the President, who replied very briefly, saying: "We have come into the serious, but always inspiring, presence of Washington. He was the incarnation of duty, and he teaches us to-day this great lesson—that those who would associate their names with events that shall outlive a century can only do so by consecration to duty." Then the Roman Catholic Archbishop, Michael A. Corrigan, in the purple robes of his high office, pronounced the benediction. The President was driven to the stand on Fifth Avenue, opposite Madison Square, from where he reviewed the passing troops, who formed the greatest military procession ever witnessed in New York city. In numbers it exceeded the army first called out by President Lincoln to suppress the Rebellion. The line of march was up Broadway to Waverly Place, thence up Fifth Avenue to Fourteenth Street, where a detour was made to Broadway, around Union Square, and back through Fifteenth Street into Fifth Avenue, following that thoroughfare to Fifty-seventh Street, where the procession disbanded. The chief marshal was the commanding general of the United States army, John M. Schofield, who rode at the head of the parade, followed by a brilliant staff including twenty-three aids, chosen from as many different States, each of which had sent its representative to take part in the celebration. The procession was divided into three divisions. At the head of the first was the entire battalion of cadets from the United States Military Academy at West Point. The magnificent appearance of these four hundred men as they swept up the avenues gained for them the continuous applause of the people. The naval brigade of 1,200 men, including marines, naval apprentices, and boys from the training ships, followed, and then came the regulars in their blue uniform, nearly 1,200, with representative detachments of artillery, cavalry, and infantry. The second division was composed of the States' militia arranged in the order in which the States had ratified the Constitution. At the head of the representatives from each State rode its governor and his staff. Delaware came first with 450 men, led by Gov. Biggs, followed by Gov. Beaver, who having lost a leg in the civil war was strapped to his saddle, with the Pennsylvania contingent of 7,200 men. New Jersey, represented by 4,000 men, led by Gov. Green, was next. Georgia sent only 50 men, but these were commanded by Gov. Gordon, whose record is that of a brave soldier. Then came Gov. Bulkeley of Connecticut with 650 men, including the brilliantly uniformed Hartford Foot Guards. Gov. Ames, escorted by two corps of Boston cadets, was at the head of the Massachusetts troops, 1,500 strong, among whom were the ancient and honorable artillery

of Boston. Maryland sent its famous Fifth Regiment with Gov. Jackson and 600 men. South Carolina followed, 360 strong, under Gov. Richardson, who was escorted by the Washington Light Infantry who brought with them the historic Eutaw flag which they carried in the Revolution. Then came 1,300 soldiers from New Hampshire with Gov. Sawyer at their head. Gov. Fitzhugh Lee rode in front of the 1,000 men that Virginia sent, among whom were the Richmond Light Blues who organized in 1789. New York had 13,223 men in line, with Gov. Hill at their head. The famous Seventh Regiment came first, and the well known Twenty-second, Twenty-third, and Sixty-ninth Regiments, and the Old Guard were recognized. North Carolina was represented by Gov. Fowle with 150 men, and Rhode Island sent her detachment of 400 soldiers with Gov. Taft. Following these was Gov. Buckner of Fort Donelson fame with 300 men from Kentucky. Gov. Foraker and 3,500 troops from Ohio were next, and then Louisiana came, 180 strong, with representatives of the New Orleans Washington Artillery, whose colors bear the names of fifty battles, and belongs to the early history of the State. Missouri was represented by Gov. Francis and 300 of its State troops. Michigan sent Gov. Luce with 115 men. The Washington Light Infantry, with its white uniform, and other militia from the District of Columbia were present, 700 strong. Forty of the Ocala Rifles from Florida, and a contingent of the Belknap Rifles from Texas were in line. West Virginia sent Gov. Wilson and 200 of its militia to join the procession. The third division consisted of 10,000 men, representing various posts of the Grand Army of the Republic. These were led by Department Commander Harrison Clark and the National Commander-in-Chief, William Warner. A battalion of the Loyal Legion, some 100 in number, commanded by Col. William C. Church, were the last of the line. In all, it is estimated that over 50,000 persons took part in the parade. In the early part of the evening displays of fireworks, under the auspices of the civic authorities, took place at Battery Park, Canal Street Park, Tompkins Square, Washington Square, Union Square, Central Park Plaza, East River Park, and Mount Morris Square. The German musical societies from New York and vicinity, fifty in number, gave together a large open-air concert in Madison Square. Reinhold Schmelz directed a band of 75 pieces, and began the music with the playing of the grand march from "Tannhauser." Then 2,000 voices sang the "Jubilee Overture" under the leadership of Theodore Thomas. The "Hallelujah Chorus," "Hail Columbia," and the "Jubilee Chorus" followed, ending with the "American National Hymn," the chorus of which was taken up by the vast multitude who had come to listen, and the great square rang with the music till the last note, when it faded away as the concert ended and the people turned their faces homeward. The event of the evening, however, was the Inauguration Centennial Banquet, held in the Metropolitan Opera House. The entire auditorium of this great building had been boarded over, and where, on the evening before the dancing had taken place, 26 tables were now arranged in rows. At 8 o'clock President Harrison, leaning on the arm of Mayor

Grant, entered the hall, and as he advanced the guests raised their voices in cheers of welcome, while the band added its recognition by playing "Hail to the Chief." At the head of the presidential table sat Mayor Grant, as the host of the occasion and the official representative of the city of New York. On his right was President Harrison, the Vice-President, the Chief-Justice of the United States, Gen. Schofield, Senator Evarts, Ex-President Hayes, Bishop Potter, Secretary Proctor, and Gen. Sherman; while on his left were the Governor of the State, the Lieutenant-Governor, Judge Andrews, Admiral Porter, Senator Hiscox, Ex-President Cleveland, Speaker Cole, Samuel S. Cox, and Clarence W. Bowen; and facing him was Elbridge T. Gerry. The boxes above the hall were filled with ladies, whose presence in their evening costumes added beauty to the scene and inspiration to the speakers. Among the special guests, besides Mrs. Harrison, were the following ladies who had been mistresses at the White House: Mrs. Grant, Mrs. Hayes, Mrs. McElroy, and Mrs. Cleveland. Grace was asked by Bishop Potter, and after the banquet Mayor Grant introduced Gov. Hill, who made the "Address of Welcome." The toast of "George Washington" was drunk in silence as the guests stood. In regular order the following toasts were then called and responded to: "The People of the United States," Grover Cleveland; "The States," Fitzhugh Lee; "The Federal Constitution," Melville W. Fuller; "The House of Representatives," James G. Blaine (omitted owing to the absence of Mr. Blaine); "The Senate," John W. Daniel; "The Presidency," Rutherford B. Hayes; "The Judiciary," William M. Evarts; "The Army and Navy," William T. Sherman; "Our Schools and Colleges," Charles W. Eliot; "Our Literature," James R. Lowell; and "The United States of America," Benjamin Harrison. At the tables were places for 800 persons, and over 5,000 were present in the house during the banquet.

The Third Day.—Like its predecessors, the day opened with artillery salutes from the forts and national vessels in the harbor. Essentially, however, this day was given over to the people, and its particular feature was the civic parade, planned and directed by Gen. Daniel Butterfield, who was its grand marshal. The line of march was from Fifty-Seventh Street and Fifth Avenue downward, along the same route as before, to Canal Street and Broadway, where it disbanded. The President, Vice-President, Mr. Cleveland, members of the Cabinet, and other citizens specially invited assembled on the reviewing stand, on Fifth Avenue opposite Madison Square, at 10 o'clock. At the head of the line marched Mayor Grant, who stopped in front of the grand stand and handed to the President a silver cylinder, about fourteen inches long, prettily chased and bearing the inscription: "1789 Centennial Celebration, 1889. Civic and Industrial Parade. Addressed to the President of the United States by the Civic, Industrial, and Commercial Bodies of New York City. Daniel Butterfield, Chief Marshal; Hugh J. Grant, Mayor." Within the cylinder was a scroll of parchment several feet long on which was engrossed an address to Mr. Harrison that was signed by more than one hundred citizens of New York city. This ceremony over,

Mayor Grant took his place at the side of the President, and the procession, headed by Gen. Butterfield and his large staff, advanced. The educational division, led by J. Edward Simmons, President of the Board of Education, came first. Delegations from Columbia College, the College of Physicians and Surgeons, the College of the City of New York, the New York University, the Hebrew Orphan Asylum, and the public schools followed. Then came the military organizations of foreign-born citizens; French, German, Irish, Italian, Scotch, Swiss, and other bodies were represented. Harry Howard led the division of firemen which included the old volunteer companies, not only of New York city but of Philadelphia and other adjacent cities. From the primitive hose-cart, through the various developments, to the modern engine propelled by steam, the different varieties of fire-extinguishing machine passed before the reviewing stand. The Irish division followed, including two thousand members of the Ancient Order of Hibernians. Then the Tammany Braves, led by Gen. John Cochrane, once a candidate for the presidency, passed down the avenue. The many trades sent their associations, including the bakers, the butchers, the piano-forte makers, the plasterers, and many others, dressed in the peculiar dress of their respective pursuits. At various intervals large floats appeared in the line of the procession. Of these some were historic, representing such subjects as "John Smith and his Party, 1607"; "Hendrik Hudson and his Crew, 1609"; "William Penn and the Quakers, 1682"; "Declaration of Independence, 1776"; "Washington crossing the Delaware, 1776"; "The Inauguration of the First President, 1789." Others were suggestive of the times, such as "The Press and Public Opinion," consisting of a Washington hand-press and a modern press worked by electricity, on both of which circulars were printed and distributed along the route. "The Kindergarten," showing children grouped around a monument to Froebel and at work at basting and braiding, "Civil Engineering," and "Architecture," were represented by followers of these professions at work. Still others were of allegorical character, among which were "Arion," "Bacchus," "Prince Carnival," and "Christinas," from whose titles an idea can be gathered of what they were like. "The Brewery," "the Bakery," "Artificial Mineral Waters," are typical of those which symbolized trades. "The German Opera" and "Wagner Opera" were living tableaux of scenes from the works of great composers, and were perhaps the most striking of the floats. Upward of 75,000 persons took part in the parade. The presidential party left for Washington early in the afternoon, but in the evening a municipal banquet was given at the Academy of Music in Brooklyn, over which Mayor Chapin, of that city, presided. Over five hundred guests were present, who listened to speeches made by eminent citizens in response to appropriate toasts. During the same evening the Association of the Bar of the City of New York gave a reception to the justices of the Supreme Court of the United States. The chief justice and several of his associates were present, and were received by the president of the club, Joseph H. Choate. With this event the celebration closed. During

several weeks a Washington loan exhibition of historical portraits and relics were held in the assembly rooms of the Metropolitan Opera House. In commemoration of the celebration a medal was designed by Augustus St. Gaudens and modeled under his direct supervision by Philip Martiny.

Literature.—"The Century Magazine" devoted its April issue largely to subjects pertaining to the Washington Centennial. Likewise the December, 1888, the February and March, 1889, issues of "The Magazine of American History" were given up to historical papers pertaining to the event. These were reprinted in pamphlet form. The "New York Mail and Express" published on April 27 a "Centennial number" and the "Evening World" of April 30 was printed on specially prepared red, white, and blue paper. The "Sun and Shade" for May, 1889, contained illustrations reproduced from photographs of the principal events of the celebration. The articles contained in "The New York Tribune" of April 29, 30, and May 1, were reprinted as a "Tribune Extra." Clarence W. Bowen, who was Secretary of the Executive Committee, has in preparation a work giving a full account of the celebration, including a description of the original inauguration one hundred years ago; also of the semi-centennial fifty years ago; and a history of all the preliminary work, as well as an account of the celebration.

NEW ZEALAND, a colony of Great Britain in the Pacific Ocean. The Legislative Council consists of 45 members, nominated for life by the Crown, and the House of Representatives of 95 members, elected by the people for three years under the system of manhood suffrage. The present ministry took office in October, 1887. The Premier is Sir Harry Atkinson; G. F. Richardson is Minister of Lands, Mines, and Immigration; T. Fergus is Minister of Justice and Defense; G. Mitchelson is Minister for Public Works and Native Affairs; Sir F. Whitaker is Attorney-General; and E. C. J. Stevens is Minister in the Legislative Council without portfolio. G. Fisher, Minister of Education and Customs, having disagreed with his colleagues on various matters, resigned early in 1889, and Capt. W. Russell has joined them in his place. T. W. Hislop, the Colonial Secretary, having been censured by a parliamentary committee for interfering with one of the district judges, resigned his portfolio, and also his seat for Oamarn, at the close of the session of 1889. He was re-elected, and has taken his place as Minister of Education and Customs, Capt. Russell being Colonial Secretary. Late in 1889, the Earl of Onslow succeeded Sir William Jervois as Governor.

Area and Population.—The area of the islands is 66,710,320 acres, of which 18,914,370 acres had been alienated before the close of 1887. During 1887 and 1888 there was an exodus of population, rising often to as many as 2,000 a month, chiefly to Victoria and New South Wales. But in 1889 it not only stopped, but in the latter months turned. The population, exclusive of Maoris, in 1888 was 605,371.

Finances.—The debt of the colony in December, 1888, amounted to £35,536,381, deduction being made of the accrued sinking fund. The debt per head of the population was nearly £60.

More than two thirds of the liabilities were incurred for immigration and public works. Under the premiership of Sir Julius Vogel, the colony borrowed till at last the London money market was closed to it. The ministry under which the public debt had been incurred was compelled to hand over to another the task of devising new taxes to restore the financial equilibrium. The public and private debts together reach the sum of £89,500,000; but the unsold land is accounted worth £118,000,000; private capital, £82,000,000; and the state railroads, telegraphs, and other property, £19,000,000. The total revenue in 1888 was £4,109,815, including £2,031,658 raised by taxation—i. e., £3 7s. 1d. per head. The expenditure in the same year was £3,962,912, including £1,868,111, the annual charge on the public debt of \$36,971,771. The railways paid, between March, 1888, and March, 1889, 2·60 per cent. on the capital invested in them, while in the previous financial year they earned only 2·30 per cent. Some of the earlier loans at a high interest have been reissued at 3½ per cent., at a satisfactory price.

Railroads, Telegraphs, and Post-Office.—

Two considerable railways during these three years have been begun by private companies on the system of land grants from the public estate. The Wellington-Manawatu line has been completed, and had successful sales of some of its lands. The Midland line, to join Westland and Canterbury, is being rapidly pushed forward. But a bill to place the Otago Central line on the same footing was thrown out. The railroads in 1888 had a total length of 1,841 miles. Their cost was about £16,000,000. The post-office, in 1887, transmitted 39,377,774 letters and 15,381,323 newspapers. On Jan. 1, 1888, the telegraph lines had a total length of 4,646 miles, with 11,375 miles of wire. The number of dispatches in 1887 was 1,835,394.

Commerce.—The value of imports in 1887 was £6,245,515; of exports, £6,866,169. The wool export was £3,321,074; gold, £747,878; grain and flour, £468,970; frozen meat, £455,870; Kauri gum, £362,434; hides, skins, and leather, £229,478. The capital invested in manufacturing in 1885 amounted to £6,697,117; the number of persons employed was 25,655. New Zealand is now emerging from a period of depression, which was part of the general current of commercial depression throughout the world, but it had also special and local causes to prolong it; these were a reaction from a period of over-speculation in land, the fall in the price of her great staples, wool and wheat, and the great debt necessitating increased taxation. The chief causes of the change are the rise in the price of wool and wheat in European markets, the rapid growth of the trade in frozen mutton, the new demand for New Zealand flax, or hemp, the expansion of her Australian markets for dairy and farm produce through great droughts and failure of crops in Australia, a succession of fine seasons and crops, the increase and prosperity of local industries, the disappearance of the depression in England and the restored confidence in the Bank of New Zealand, which, after passing its dividend and otherwise facing its difficulties, has again begun to pay dividends and add to its reserve fund.

The imports have gone down from £7,479,921 in 1885 to £5,941,900 in 1888, the significance of this being that fewer railways are being built at public expense, and the country is relying more and more on its own manufactures. The exports rose from £6,819,939 in 1885 to £7,767,325 in 1888, and the results are still better in 1889, chiefly because of the rise in the value of wool, wheat, and hemp, and the development of the frozen-mutton trade. Thus, while the imports per head of population (excluding Maoris) have receded in these years from £13 4s. 9d. to

failed, but, uniting with the economists, they were able to eurtail the expenditure upon it to a slight extent.

In the session of 1889 there was a struggle over a representation bill that gives the country districts a third more representatives than the towns. During the contest, which ended in the passage of the Government's bill, the House once remained in session for 76 hours.

The Government has been put to considerable expense in guarding against the threatened uprising of the Maoris, who accuse the whites of



CANTERBURY COLLEGE, CHRISTCHURCH, NEW ZEALAND.

£9 16s. 4d., the exports have advanced from £12 1s. 5d. to £12 16s. 7d.; and the rise is more significant when it is considered that the exports had gone down as low as £11 9s. 3d. per head in the year 1886.

The Exhibition.—There was opened at the end of November, 1889, the New Zealand and South Seas Exhibition at Dunedin, the largest exhibition yet held in the country. The journalists who have visited it have expressed surprise at the advance made by the country and pleasure at the gathering sounds of prosperity throughout it. The harvests of the year promise to be excellent and the prices of all produce and stock are high; while native industries are rapidly displacing foreign manufactures.

Legislation.—In 1888 the Protectionist members of the Opposition united with the ministry against its own Free-trade followers, and helped it to raise the tariff to 25 per cent. ad valorem, chiefly on kinds of goods that are or might be manufactured in the colony. An attempt was made by the opponents of the present system of education to change its secular character; it

breaking treaty engagements and of robbing them of their lands. Te Kooti, a leader of the natives, was expected in February to attack the Poverty Bay district, which the Maoris claimed as their own, and which whites had seized and occupied with the aid of colonial troops. Toward the end of February Te Kooti was arrested while on his way home, and was taken to Auckland and committed to jail.

NICARAGUA, a republic in Central America; area, 51,600 square miles; population, in 1886, 262,372.

Government.—The President is Dr. Roberto Sacasa, whose term of office will expire on March 1, 1891. The Cabinet is composed of the following ministers: Foreign Affairs and Public Instruction, Don Isidro Urtecho; Interior, Señor Barrios; War, Don David Osorno; Public Works and Communications, Señor Gonzalez. The Nicaraguan Minister at Washington is Dr. Horacio Guzman; the Consul-General at New York, Alexander Cotheal; the American Consul at Managua is D. Bernard Macauley; at Greytown, William A. Brown.

Finances.—The income in 1888 was \$8,339,962 and the outlay \$8,050,184. In June the Government granted a concession to Manuel Calderon for establishing a new bank at Managua.

The Army.—The effective strength of the permanent army in 1889 was 1,200 men, with a reserve of 10,000 and a National Guard of 5,000.

Postal Service.—The number of post-offices in 1889 was 51. The receipts were \$21,197, and the expenses \$59,010.

Telegraphs.—In 1888 there were 53 offices in operation, the receipts amounting to \$42,832 and the expenses to \$123,463. On Oct. 2, 1888, the Government made a contract with Señor V. Cuenca Creus for the laying of a cable between Nicaragua and New York *via* the West Indies. It will connect with a cable projected between Cuba, the Canary Islands, and Spain.

Railroads.—The two lines in operation are the one connecting Corinto with Momotombo *via* Chinandega and Leon, and the one between Managua and Granada *via* Masaya. A line of stages is to compete with the latter, at a rate of fares 25 per cent. below those charged by the railroad.

Steamer on the Pacific Coast.—Don Andres Nova is the owner of a coasting steamer that keeps up a regular service between La Union, Amapala, El Tempisque, and Corinto. More steamers are to be placed on Lake Nicaragua. The capital stock of the company is \$200,000.

Land Sales.—Early in 1889 the Government issued a decree fixing the price of public lands per *manzana* at the following rates in silver coin: pasture, 80 cents; ordinary agricultural lands, \$1.50; agricultural, well watered, \$2, and 40 cents additional if there are any cabinet woods on it.

Commerce.—The foreign-trade movement in Nicaragua in 1888 was distributed as follows, reduced to thousands of dollars:

COUNTRIES.	Imports.	Exports.
Germany	766	253
England	252	665
France	351	246
Italy	42	9
Spain	16	6
United States	895	234
Central America	263	196
Colombia	20	3
Chili	8	....
Other countries	28	....
Total	2,146	1,612

The American trade with Nicaragua has been as follows:

FISCAL YEARS.	Import into the United States.	Domestic export to Nicaragua.
1889	\$1,747,246	\$900,813
1888	1,496,171	861,156
1887	1,662,162	701,151
1886	1,067,902	471,671

There entered Nienarugan ports in 1886, 150 vessels, with a tonnage of 170,658.

The Central American Union.—In November Honduras, Salvador, and Guatemala signed the treaty under which the United States of Central America are to be formed. Under this treaty the union for the first ten years is to be simply a confederation, an offensive and defen-

sive alliance, and the President of the confederation is to have no power except in the diplomatic and foreign relations of the allied states. At the close of this provisional period, if the experiment has proved satisfactory, a more perfect union will be formed. Costa Rica is ready to enter the confederation as soon as her chief rival, Nicaragua, signs the compact. President Sacasa of Nienaragua, being thoroughly in favor of the union, formally signed the treaty, but the Nienarugan Congress reviewed his action and declared it null and void. That body wants more time to discuss the proposed change, and has consequently steadily refused to give its consent to joining the confederation. The reason for Nienaragua's reluctance to join the proposed union is probably to be found in the interoceanic canal, which has every prospect of being pushed to a speedy and successful termination. This great waterway, to be built by American capital, is at no point to pass without the boundaries of Nicaragua. This canal and its vast possibilities Nicaragua will control so long as she maintains her independence, and incidentally it brings to her the moral prestige of protection by the United States of America in case of threatened danger to the property by invasion or otherwise. Should she join the projected union, it is probable that the General Government would claim the right to control the canal, on the double ground that it is a highway of commerce and that it properly comes within the meaning of the Constitution regarding foreign relations.

Retrocession of the Mosquito Territory.—In June the Nienarugan minister at London had informed his Government that England relinquished the protectorate over the Mosquito territory.

Gold Mines.—A new gold field was discovered in September along the banks of Princepulka river, 170 miles from Greytown. The field covers several square miles, and extends several miles into the forest. A company was immediately formed at Managua to carry on operations, and a police force was sent to maintain order.

The Nicaragua Canal.—Although a formal beginning of the work was not made until Oct. 22, much of the preliminary labor had been done. Parties of engineers and cargoes of supplies had left New York for Greytown at intervals. The company's forces had set up twenty-seven miles of telegraph and telephone line. They had built a small town near the shore, and had completed one mile of railroad. A pier in the harbor had almost been finished, and the route from Greytown to the river had been cleared. Toward the close of the year the chief engineer was at Greytown superintending the work, more particularly the construction of the breakwater, of which about seventy feet had been built. Men and material were constantly arriving at Greytown, and the canal company was recruiting throughout Central America, in Jamaica, the Bahamas, and elsewhere. Property along the line of the canal, particularly on the Pacific side and around Lake Nicaragua, had increased in value rapidly; new railroads and new enterprises of other descriptions were talked of or begun. Managua, the capital, has become quite a handsome city. The

greater part of this activity was of course due to the canal, but it was assisted by the rapidly developing coffee plantations.

NORTH CAROLINA, a Southern State, one of the original thirteen, ratified the Constitution Nov. 21, 1789; area, 52,250 square miles; population, according to the last decennial census (1880,) 1,399,750; capital, Raleigh.

Government.—The following were the State officers during the year: Governor, Daniel G. Fowle, Democrat; Lieutenant-Governor, Thomas M. Holt; Secretary of State, William L. Saunders; Treasurer, Donald W. Bain; Auditor, George W. Sanderlin; Attorney-General, Theodore F. Davidson; Superintendent of Public Instruction, Sidney M. Finger; Commissioner of Agriculture, John Robinson; Chief Justice of the Supreme Court, William N. H. Smith, who died on Nov. 14, and was succeeded by Augustus S. Merrimon; Associate Justices, Augustus S. Merrimon, promoted to the the Chief-Justiceship on Nov. 16, Joseph J. Davis, James E. Shepherd, Alphonse C. Avery, and Walter Clark. Justice Clark was appointed on Nov. 16 to succeed Associate-Justice Merrimon.

Finances.—In accordance with the legislative act of this year, an agreement was reached with the United States for refunding the 6-per-cent. construction bonds held by the latter, which were issued by the State in aid of the North Carolina Railroad. The amount of bonds so held was \$147,000. Practically all the construction bonds issued by the State, amounting to \$2,606,000, have been refunded into 4 per cent. bonds. The remainder of the State debt consists of the war or reconstruction debt, recognized as valid by the act of 1879, amounting to \$12,627,045. This act provided for refunding the whole amount at a discount within a fixed time, and under it nearly \$11,000,000 has been exchanged for 4-per-cent. bonds, valued at about \$3,100,000. The period for refunding under this act was this year extended to July 1, 1890, after which unexchanged bonds will not be recognized as payable. The amount of bonds unexchanged at the beginning of the year was \$1,913,100.

The State tax for this year was 28 cents on each \$100, of which 3 cents was levied for the pension fund, and 25 cents for current expenses. This rate is 8 cents higher than that of 1888.

Legislative Session.—The regular biennial session of the Legislature began on Jan. 9, and adjourned on March 11. On Jan. 22 United States Senator Matt W. Ransom was re-elected by the following vote: Senate—Ransom 33, Oliver H. Dockery, the Republican candidate, 13; House—Ransom 80, Dockery 34. A new revenue law fixes the poll tax at 75 cents, and provides for the levy of an annual *ad valorem* tax of 25 cents on each \$100. A further tax of 1 per cent. on the income of property not otherwise taxed, and, of one half of 1 per cent. on salaries and fees above \$1,000, is to be assessed. Licenses are imposed on a large number of trades and occupations. The retail liquor license tax is \$100 a year, and the wholesale tax \$200. For dealing in malt liquors only the license is \$20 annually. Railroad, steamboat, and canal companies shall pay 1 per cent. of their gross earnings, and express, telegraph, and telephone companies, 2 per cent. of their gross receipts. Sleeping and parlor

car companies shall pay \$500 annually. The election laws were so amended that judges of elections for county and State officers may, in their discretion, rail off a space at each polling place. Only one voter at a time shall enter such space, and no one but the election officers shall interfere with or speak to voters while they are within the inclosure. All voters shall pass through this space to vote. Another space may be railled off as a polling place for the election of congressmen and presidential electors.

The following appropriations were made: To the Institution for the Deaf, Dumb, and Blind, \$40,000 annually; to the Insane Asylum at Raleigh, \$52,500 annually; to the Western Insane Asylum at Morganton, \$85,000 in 1889, and \$90,000 annually thereafter; and to the Eastern Insane Asylum at Goldsborough, \$40,000 in 1889, and \$30,000 annually thereafter. Other acts of the session were as follow:

To punish any one who resists or obstructs a public officer in the discharge of his duty, or who refuses to aid such officer when called upon.

Prescribing a simpler form of indictment for perjury.

Appropriating \$5,000 annually for a camp of instruction for the State Guard.

Authorizing manufacturers of timber to use private brands or marks, a description of which shall be filed with the Register of Deeds, and punishing interference with timber or logs so branded.

Regulating the apprenticing of indigent and other children, and providing that no white child shall ever be bound to a colored person in the State.

To prohibit dealing in "futures," and declaring all contracts with reference to such dealings, to be void.

Exempting telegraph operators from jury duty.

Prohibiting the issue of non-transferable scrip to laborers in certain counties.

To provide for the collection and tabulation of criminal statistics for the State.

To prevent discrimination in freights against the Atlantic and North Carolina Railroad.

Prohibiting non-residents from using any scoop or dredge for taking oysters in the waters of the State.

Distinguishing between burglary of the first and second degree. A person shall be guilty of burglary in the first degree if the crime is committed in a dwelling-house or in a room used as a sleeping-apartment in any building and any person is in the actual occupation of any part of such dwelling-house or sleeping-apartment at the time of commission of the crime. The punishment of this crime shall be death. It shall be burglary of the second degree if the premises are not at the time actually occupied by any one, and the punishment in such case shall be imprisonment.

To punish any one who obtains advances of any kind from another on promise of beginning labor for him, and who fails to begin such labor.

Providing for the appointment of two commissioners to rerun and remark, in conjunction with commissioners from the several States, the boundary line between North Carolina and Virginia, Tennessee, South Carolina, and Georgia, and to fix permanent monuments thereon.

Forbidding counties, cities, or towns from contracting any debt for constructing railroads, for internal improvements, or for any special purpose in excess of 10 per cent. of their assessed valuation.

Making it unlawful to point any gun or pistol at another, whether it be loaded or not.

To prohibit "trusts," and rendering offenders liable to a fine of not more than \$10,000 or imprisonment for not more than ten years.

Education.—The revision of the public-school law by the Legislature this year, includes the

following important changes: The use of school books recommended by the State Board of Education is made compulsory upon all schools of the State, all townships, cities, and towns, on the petition of one third of the free holders therein, have the right to vote on the question of increasing their school-tax 10 cents on \$100 of property and 30 cents on polls. The apportionment of money to the races is to be made in such manner as to equalize school terms between the races as far as practicable, and the apportionment to the districts of each race is to be made on a per capita basis, except that a small part of the money apportioned to each race may be used for helping necessarily weak districts. Another act of the session abolishes the eight normal schools for white teachers, and directs that the annual apportionment for these schools shall be used to support county teachers' institutes, which all white teachers in each county are compelled to attend, and also to pay the expense of conducting county examinations of teachers. The State Agricultural College at Raleigh was opened in October. Up to the close of the year fifty students had been admitted.

Penitentiary.—Although the annual appropriation for the two years previous was \$100,000, the State Penitentiary, on March 1, was found to be in debt to the amount of \$57,942 beyond the appropriation. This result was caused largely by the practice of assigning convicts to work on public improvements, where little or no compensation was obtained for their labor. The Legislature this year provided that hereafter no convicts should be furnished free of expense for any work, whether public or private, and that the authorities should not be required to obey any statutes assigning convicts to any work, and fixing the maximum rate of compensation to be charged therefor. At the same time, the annual appropriation by the State, in addition to the regular earnings, was reduced to \$75,000. The number of convicts is about 1,300.

Confederate Pensions.—The number of pensioners under the act of 1885 and its amendments increased from 3,708 in 1888 to 3,884 this year, of whom 2,687 were widows and only 1,197 soldiers and sailors. The amount payable to each (out of the annual appropriation of \$30,000) was consequently reduced from \$8.25, the share of each in 1888, to \$7.65 for this year. For the purpose of increasing this meager sum, and to make a more equitable distribution, the Legislature passed a new pension law, which will take effect in 1890. This act provides that every Confederate soldier or sailor who is totally disabled by wounds shall receive \$100 annually, every one who has lost an arm or a leg in the service shall receive \$50 or \$75 annually, according to the injury, and every one who has lost an eye or is otherwise injured, and every widow whose husband was killed in the service, shall receive \$25 annually. No one who owns property worth \$500, and no widow who is not actually indigent, shall be entitled to relief. A State tax of three cents on each \$100, and a tax of nine cents on each poll shall be levied to provide a pension fund. It is estimated that the proceeds will be about \$80,000 annually.

Negro Exodus.—Dissatisfaction among the negroes with their position in the State has in

former years led to a moderate emigration, but from various causes the number of emigrants this year largely increased, amounting to nearly 50,000 in all, according to an estimate of the Governor. The movement began early in the year, and was fostered by emigration agents from Western States. A State convention was called by the leaders of the movement to meet at Raleigh on April 25. Several hundred people were in attendance, and resolutions were adopted setting forth the hardship of the negro and advising emigration. It was said that his condition was now more precarious than ever; that white people were persecuting him by oppressive Legislative enactment, such as the law making it an indictable offense for a man under contract to leave his employer without his consent; that white juries were prejudiced against negroes; that a recent act of the Legislature meant total destruction to free-school education to negroes in the State; that there was an overplus of colored labor in the State; that the farmers had organized the Farmers' Alliance, which was an oppressive institution to the colored laborer. The election law was referred to as a "direct thrust at the negro," which disfranchised two thirds of the colored voters of the State because it made it necessary for them to know how to read before they could vote. Finally it was declared that the colored people were acting wisely in leaving this country, and that emigration should be promulgated in every county in the State. It was recommended that a committee of seven be appointed to go on a prospecting tour and to select such lands as would be suitable for the negroes to settle on and to wait on the President of the United States to see upon what terms the lands could be secured for that purpose. The excitement among the negroes in many localities, especially in the eastern counties, was great, and large companies were daily carried from the State. In most cases the destination was Kansas, Arkansas, Texas, or Oklahoma. A few went to Mississippi or Louisiana. Their expenses were generally paid by emigration agents, some of the eastern counties were so depopulated that farmers began to fear that help would entirely fail them, and sought to discourage the movement; but, except in midsummer, there was no abatement of the exodus.

NORTH DAKOTA. a Northwestern State, admitted to the Union, Nov. 3, 1889; area, about 75,000 square miles; population, estimated at 225,000; capital, Bismarck.

Government.—The following were the State officers from the date of admission: Governor, John Miller, Republican; Lieutenant-Governor, Alfred Dickey; Secretary of State, John Flittie; Auditor, John P. Bray; Treasurer, L. E. Booker; Attorney-General, George F. Goodwin; Superintendent of Public Instruction, William Mitchell; Insurance Commissioner, A. L. Cary; Commissioner of Agriculture and Labor, H. T. Helgesen; Railroad Commissioners, F. S. Underhill, David Bartlett, George S. Montgomery; Chief Justice of Supreme Court, Gny C. H. Corliss; Associates Alfred Wallin and J. N. Bartholomew.

The Admission Act.—This act, which received the signature of President Cleveland on Feb. 22, so far as it related to North Dakota, provided for the assembling of a convention at

Bismarek on July 4, which should prepare a Constitution for the proposed State, to be submitted to the people on the first Tuesday of October. The convention was directed to appoint a committee to meet a similar committee from South Dakota and agree upon a division of the institutions, debt, records, etc., of the Territory of Dakota. This agreement should be incorporated in the Constitution of each proposed State. On receiving official notice of the adoption of the Constitution by the people at the October election, the President was directed to issue his proclamation admitting the State to the Union. It should thereupon become entitled to the sixteenth and thirty-sixth sections of every township, or to sections in lieu of such, to be sold or leased by the State, and the proceeds used to form a permanent school fund for the support of common schools. This fund should also receive 5 per cent. of the net proceeds of all public lands sold by the United States subsequent to admission. The following lands were also granted to the State: Seventy-two sections for university purposes (being in part a confirmation of former grants), fifty sections for public buildings at the capital, 130,000 acres for agricultural colleges, 40,000 acres for a school of mines, 40,000 acres for a reform school, 40,000 acres for a deaf-and-dumb asylum, 40,000 acres for the university, 80,000 acres for normal schools, 170,000 acres for general educational and charitable purposes, and 50,000 acres additional for public buildings at the capital. A grant of \$30,000 to erect a State penitentiary similar to that in South Dakota was also made. The State should form one judicial circuit and should have one Representative in Congress, until otherwise provided.

Constitutional Convention.—In accordance with the above-mentioned act, the Territorial Governor, on April 15, issued his proclamation, calling a special election in North Dakota on May 14 for the purpose of selecting delegates to a constitutional convention. The number of delegates chosen was 75, a majority of whom were Republicans. The convention met at Bismarek on July 4, and chose F. B. Fancher as president. It adopted a Constitution, of which the following are the prominent features:

The legislative power shall be vested in a Senate and House of Representatives. There shall be not fewer than 30 nor more than 50 Senators, and their term of office shall be four years. There shall not be fewer than 60 nor more than 140 members of the House, and their term shall be two years.

Each member of the Legislative Assembly shall receive as a compensation for his services for each session \$5 per day, and 10 cents for every mile of necessary travel in going to and returning from the place of the meeting of the Legislative Assembly, on the most usual route.

The Legislative Assembly shall meet at the seat of government at twelve o'clock noon, on the first Tuesday after the first Monday in January, in the year next following the election of the members thereof.

The sessions shall be biennial, and no regular session shall exceed 60 days except the first, which may be 120 days. Bills may originate in either House.

The general appropriation bill shall embrace nothing but appropriations for the expenses of the executive, legislative, and judicial departments of the State, interest on the public debt, and for public schools. All other appropriations shall be made by separate bills, each embracing but one subject.

The Legislative Assembly may change, regulate, or abolish the grand-jury system. The offense of solicitation of bribery by members of the Legislature is defined. Local and special laws are forbidden. All acts shall take effect on July 1, next after the close of the session, except in case of emergency.

The executive power shall be vested in a Governor, who shall reside at the seat of government and shall hold his office for the term of two years and until his successor is duly qualified.

A Lieutenant-Governor shall be elected at the same time and for the same term as the Governor.

The Lieutenant-Governor shall be President of the Senate, but shall have no vote unless they be equally divided. He shall act as Governor in case of the removal or disability of the Governor or his absence from the State, and in case neither can act, the Secretary of State shall be acting Governor. The Governor shall have the pardoning power and a veto power. He may veto separate items of an appropriation bill.

There shall be chosen by the qualified electors of the State, at the times and places of choosing members of the Legislative Assembly, a Secretary of State, Auditor, Treasurer, Superintendent of Public Instruction, Commissioner of Insurance, three Commissioners of Railroads, an Attorney-General, and one Commissioner of Agriculture and Labor. They shall severally hold their offices at the seat of government for the term of two years, and until their successors are duly qualified, but no person shall be eligible as Treasurer for more than two consecutive terms.

The Supreme Court shall have appellate jurisdiction only. It shall be composed of three judges, to be elected by the people of the State at large, and holding office for six years. They shall appoint the clerk of the Supreme Court. When the population of the State shall exceed 600,000, the number of judges may be increased to five. District and county judges and justices of the peace shall also be elected by the people.

Courts of conciliation or arbitration may be established, but they shall have no power to enforce their decisions.

The general elections of the State shall be biennial, and shall be held on the first Tuesday after the first Monday in November; provided, that the first general election under this Constitution shall be held on the first Tuesday after the first Monday in November, A. D. 1890.

Women may vote for school officers and on all school questions, and are eligible to any school office.

All elections shall be by secret ballot.

Consolidation of parallel or competing lines of railroad is forbidden. Laws may be passed to control railroad rates. "Trusts," and combinations of a similar character, are forbidden.

The Legislative Assembly shall make provision for the establishment and maintenance of a system of public schools which shall be open to all children of the State and free from sectarian control.

The proceeds of all sales or leases of lands granted by the United States for educational or charitable objects shall form permanent funds, which shall never be diminished.

The total annual tax for State purposes shall not exceed four mills on the dollar. Railroads may be taxed on their gross earnings.

No State debt shall be incurred in excess of \$200,000, exclusive of the debt existing at the adoption of the Constitution. County and municipal indebtedness is also limited.

Every citizen shall be free to obtain employment wherever possible, and any person, corporation, or agent thereof, maliciously interfering or hindering, in any way, any citizen from obtaining or enjoying employment already obtained from any other corporation or person shall be deemed guilty of a misdemeanor.

The labor of children under twelve years of age shall be prohibited in mines, factories, and workshops.

All flowing streams and natural water courses shall forever remain the property of the State for mining, irrigating, and manufacturing purposes.

The State capital is permanently located at Bismarek. Numerous public institutions are established and located. Amendments to the Constitution must receive a majority vote in two successive Legislatures, and be approved by a majority of the electors at a general election. The convention decided that the following prohibitory article should be submitted to a separate vote of the people:

No person, association, or corporation shall within this State manufacture for sale or gift any intoxicating liquors, and no person, association, or corporation shall import any of the same for sale or gift, or keep or sell or offer the same for sale or gift, barter, or trade as a beverage. The Legislative Assembly shall by law prescribe regulations for the enforcement of the provisions of this article, and shall thereby provide suitable penalties for the violation thereof.

A committee was appointed which met a similar committee from South Dakota, and agreed upon a division of the Territorial indebtedness. By this agreement North Dakota assumed the payment of all bonds issued in behalf of the public institutions or buildings located within its limits, as follows: Jamestown Insane Hospital bonds, \$266,000; North Dakota University bonds, \$96,700; Bismarek Penitentiary bonds, \$93,600; Capitol-building warrants, \$83,507.46; a total of \$539,807.46. The State should receive from South Dakota \$46,500 on account of excess of Territorial appropriations for permanent improvements, for one-half interest in the Territorial library, and for other claims, and it agreed to assume a stipulated share of existing Territorial liabilities not above mentioned. A basis for dividing the share of each State in the current receipts and expenditures of the Territory up to the date of admission was also agreed upon. These stipulations were ratified by the convention and embodied in the Constitution.

Provision was also made by the convention for filling all State and local offices created by the Constitution at the election in October.

Election.—Immediately after the constitutional convention completed its work, the canvass for the election of State officers was opened. A Republican State Convention was called to meet at Fargo on Aug. 22. This convention selected the following candidates: For Governor, John Miller; Lieutenant-Governor, Alfred Dick-ey; Secretary of State, John Flittie; Auditor, John P. Bray; Treasurer, L. E. Booker; Attorney-General, George F. Goodwin; Superintendent of Public Instruction, William Mitchell; Insurance Commissioner, A. L. Cary; Commissioner of Agriculture and Labor, H. T. Helgeson; Railroad Commissioners, F. S. Underhill, David Bartlett, George S. Montgomery; Justices of the Supreme Court, Guy C. H. Corliss, Alfred Wallin, and J. N. Bartholomew; Member of Congress, L. C. Hansbrough. The platform contained the following declarations:

That we fully and unreservedly recognize agriculture as the paramount material interest of North Dakota; that there should not and can not reasonably be any antagonism between this and the commercial, manufacturing, mechanical, or other interests, because all these are inseparably identified with the great central agricultural interest and dependent upon

its prosperity for their own success. We therefore declare it to be the duty, as it should be the pleasure, of all men who are placed in public position by the people of North Dakota to oppose every unjust encroachment of corporations or trusts upon the rights or interests of the farmers, and to so administer to the Government in all its branches as will best conduce to the welfare, the prosperity, and the advancement of our agricultural people. That we are uncompromisingly in favor of the American system of protection by such properly regulated import duties upon foreign products as will stimulate every industry and protect the wages of our vast army of labor against the unfair competition of the serfs of Russia, ryots of India, the coolies of China, and the pauper labor of other nations.

The Republican party, viewing with unfeigned regret the growing evils of intemperance in our land, declares itself in sympathy with all well-directed efforts calculated to suppress the vice. We cordially approve the wisdom of the constitutional convention in providing for the submission to a vote of the people of the question of prohibition in accordance with the expressed wish of the organized temperance associations of North Dakota; and, in the event of its adoption by the people, pledge ourselves to a strict enforcement of the laws and to enact such legislation as may be necessary to that end.

The Democratic State Convention was called to meet at Fargo on Aug. 29. It nominated for Governor, William N. Roach; Lieutenant-Governor, S. K. McGinnis; Secretary of State, A. S. Froslid; Auditor, P. Odegard; Treasurer, C. D. Lord; Attorney-General, T. R. Bangs; Superintendent of Public Instruction, C. A. Kent; Insurance Commissioner, W. A. Fridley; Commissioner of Agriculture and Labor, J. R. Engberg; Railroad Commissioners, F. R. Wright, Peter Cameron, John Ely; Justices of the Supreme Court, W. P. Miller, J. W. Gammons; Member of Congress, D. W. Maratta. A platform of Democratic principles was adopted.

As the election of the Republican candidates was a foregone conclusion, the interest in the canvass centered in the question whether the prohibitory article should be embodied in the Constitution, and for its adoption the Prohibitionists made an active canvass. At the election on Oct. 1 the proposed Constitution was adopted by a vote of 27,441 in its favor to 8,107 against it. The proposed article prohibiting the manufacture and sale of intoxicating liquor received 18,552 affirmative and 17,393 negative votes, or a majority of 1,159 votes in favor of its adoption. The entire Republican State ticket was elected. For Governor, Miller received 25,365 votes and Roach 12,733; for Member of Congress, Hansbrough received 26,077 votes and Maratta 12,006. The other Republican candidates obtained correspondingly large majorities. Members of the first State Legislature were elected as follow: Senate—Republicans 24, Democrats 6; House—Republicans 56, Democrats 6.

The result of this election, duly canvassed as provided by the admission act, was officially notified by the Territorial Governor to President Harrison, who on Nov. 3 issued his proclamation admitting North Dakota to the Union.

Legislative Session.—One of the first acts of Gov. Miller was to call the first meeting of the Legislature at Bismarek on Nov. 19. Its first duty was to choose two United States Senators. A caucus of Republican members on Nov. 19 nominated ex-Gov. Gilbert A. Pierce to fill

one of these offices by a vote of 50 to 17 scattering, and on Nov. 20 he was chosen Senator by the following vote: Senate—Pierce 24, M. L. McCormack (the Democratic candidate) 6; House—Pierce 56, McCormack 6. For the second Senator the Republican caucus was unable to select a candidate, by reason of the large number of aspirants for the nomination. The contest was transferred to the joint session of the Legislature, after one ineffectual ballot in the two Houses separately, and ten ballots were there taken before a choice was reached. On the final ballot Lyman R. Casey received 62 votes, M. N. Johnson 16, and D. W. Maratta (Democrat) 4. Johnson was the leading candidate until the last ballot, and was once within four votes of election. The legislative work of the session had not been completed at the close of the year.

Finances.—At the close of the year, the amount of cash received by the State Treasurer from the Territorial Treasurer was \$57,513.41, of which \$30,290.07 belonged to the general fund. The final settlement between the States of North and South Dakota, as provided by the report of the Joint Commission, had not been made, but it was estimated that North Dakota would have to assume \$24,841.62 of the Territorial indebtedness, and in addition thereto her share of the unaudited outstanding bills against the Territory. These sums are payable out of the general fund, and will reduce it below \$5,000. The receipts to be derived from the Territorial levy of this year are estimated at \$271,898.55 and the expenditures for the fiscal year 1889-'90 payable out of these receipts, are also estimated at \$380,769.35. In addition, there is the bonded debt assumed by the State to the amount of \$539,807.46. The Territorial tax rate for 1889 is three mills.

State Institutions.—In the year ending Nov. 1, the average number of prisoners at the Bismarck Penitentiary was 44, and the total number 67. The average per capita cost of maintaining the institution was \$556.75. The Insane Hospital contained an average of 184 inmates, and the per capita cost was \$460.95.

At the North Dakota University 199 students were enrolled during the year, the average being 125. For educating these students the State paid \$228 per capita.

Agriculture.—The following are the official returns of the acreage and yield of farm products in 1889 for the North Dakota counties: Wheat, 2,655,991 acres, 26,721,660 bushels; oats, 450,563 acres, 9,746,093 bushels; corn, 30,022 acres, 1,000,175 bushels; barley, 128,631 acres, 2,760,902 bushels; potatoes, 16,119 acres, 1,401,130 bushels.

Capitol.—The Capitol building at Bismarck, although incomplete, will be adequate for the needs of the State for some time. Up to April 1 of this year, the expenditures for construction had been \$222,356.46. Of this sum \$100,000 was given by citizens of Bismarck, \$38,849 was derived from Capitol lots sold, and \$83,507.46 represents the construction debt incurred.

Irrigation.—A State convention containing about one hundred delegates, met at Grand Forks, on Nov. 12, to give expression to the desire of the people for Federal aid in solving the irrigation problem. It adopted a series of reso-

lutions and a memorial to Congress. (See article IRRIGATION, in this volume.)

(See DAKOTA and SOUTH DAKOTA.)

NOVA SCOTIA. There were no changes in the Nova Scotia government in 1889.

Trade.—The imports of Nova Scotia during the year ending June 30, 1889, were valued at \$9,235,554; the exports at \$8,832,281; giving a total trade with all countries, exclusive of the other Canadian provinces, of \$18,067,835. This trade was divided as follows: Exports to Great Britain, \$2,011,982; imports from Great Britain, \$4,022,007; total, \$6,033,989; exports to the United States, \$2,729,547; imports from the United States, \$2,848,077; total, \$5,577,624; exports to the West Indies, \$2,580,575; imports from the West Indies, \$1,429,580; total, \$4,010,155. The trade of the province with other countries than those named did not reach \$1,000,000 in any case.

The Nictaux and Atlantic Railway from Middleton, Annapolis County, to Lunenburg, on the Atlantic seaboard, seventy-five miles, was opened for traffic during the year.

Ship Railway.—An important work was begun in Nova Scotia in 1889—a ship railway to unite the Bay of Fundy with Northumberland Strait. The distance between these two bodies of water is fourteen miles, and the plan is to build a railway that will take vessels from the water on the one side and transport them to the water on the other side without breaking cargo. This ship-railway scheme has been substituted for that of a ship canal across the isthmus, which was projected more than sixty years since. Much discussion on the project has taken place within that period. From this, the weight of opinion of most eminent engineers has been to the effect that, although the construction of a canal presented no serious obstacles, the operating of it would be beset with difficulties, if not quite impracticable, owing mainly to the peculiar character of the Bay of Fundy tides—their violence and immense mud deposits. The Dominion Government has given an annual subsidy in aid of the project, and work is well advanced.

Legislation.—The principal acts passed by the Legislature in the session of 1889 were:—

A franchise act, under which the following persons are entitled to vote: Persons assessed on real property to the value of \$150, or personal property or real and personal property together to the value of \$300, or a tenant of real property of the value of \$150; the sons of persons having the above-named qualifications, provided the father has sufficient property to qualify more than one voter, and provided the son resides with his father; the son of a widow having property sufficient to qualify a voter, provided he resides with her; a person having an annual income of \$250; a fisherman with fishing-gear of the value of \$150. Every person, in order to vote, must be a male British subject, twenty-one years of age.

Making important amendments in the Towns-Incorporation act.

Amending and consolidating the laws relating to the county courts.

Authorizing the establishment by the Government of schools of instruction for miners.

To encourage the formation of mutual-relief societies by miners, by authorizing the Government to contribute from the royalty on mines toward their support.

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OBITUARIES, AMERICAN. Sketches of a few of the more noted Americans that died in 1889 may be found in their alphabetical places in this volume.

Alexandre, Francis, shipping merchant, born in the Isle of Jersey, Aug. 5, 1808; died in New York city, June 8, 1889. He went to sea when thirteen years old, and when twenty-one was placed in command of a ship. Seven years later he settled in New York city. In the mean time he applied his spare time to reading and attended night school when his vessel was in port. He established himself in the commission business, and soon afterward established a line of sailing vessels between New York and Honduras. This proving successful, he supplemented it with one between New York and Vera Cruz, and managed both lines till 1867, when he sold his sailing vessels and established a line of steamships between New York city and Havana and Mexico. These vessels carried the mails for seventeen years. In 1888 Mr Alexandre retired in favor of his three sons. He was a director and President of the Pacific Mail Steamship Company for many years.

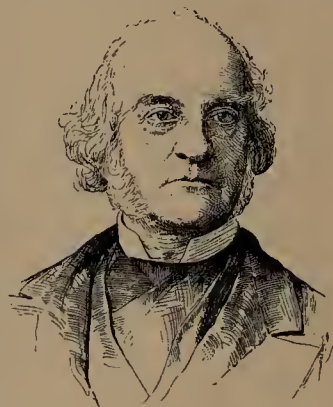
Allen, Horatio, civil engineer, born in Schenectady, N. Y., May 10, 1802; died in Montrose, N. J., Dec. 31, 1889. He was graduated at Columbia College in 1823; entered the service of the Delaware and Hudson Canal Company as civil engineer, and in 1826, when the news of the success of George Stephenson's locomotive reached the United States, he was sent to England to study the new motive power and to purchase three locomotives. He bought two from Stephenson and one from Foster, Rastrick & Co., and in August, 1829, they were shipped to Honesdale, Pa., then the end of the company's railroad line. The rails of this road were of hemlock timbers bearing bars of roll iron $2\frac{1}{4}$ inches wide and $\frac{1}{2}$ inch thick, and the locomotive had a truck device to keep it on the rails. In spite of prophecies of failure and the inability to secure an engineer, Mr. Allen got up steam himself, and on Aug. 9, 1829, successfully ran the "Stourbridge Lion" over the three-mile strip of track and back again, that being the first locomotive trip in America. In the following month he became chief engineer of the South Carolina Railroad. He remained in South Carolina several years, and after his return to New York became principal assistant engineer of the Croton Aqueduct, member of the Board of Water Commissioners in 1842, a proprietor of the Novelty Iron Works in 1844, consulting engineer and president of the Erie Railway, and consulting engineer of the New York and Brooklyn Bridge. He invented the four-wheeled truck for passenger cars, the paper railroad car-wheel, and a cut-off for steam engines.

Allen, Nathaz, physician, born in Princeton, Mass., April 25, 1813; died in Lowell, Mass., Jan. 1, 1889. He was graduated at Amherst College in 1836, and at the Pennsylvania Medical School in 1841, and began practice in Lowell. He was elected a trustee of Amherst College in 1856, and aided largely in establishing the department of physical culture there. In 1864 he was appointed a member of the Massachusetts State Board of Charities; served by successive reappointments till 1880, was frequently chairman, and in 1872 was appointed a delegate to the international congress that met in London and discussed reforms in correctional institutions. He received the degree of LL. D. from Amherst College in 1873. His published works include: "The Opium Trade" (1853); "Important Medical Problems" (1874); "State Medicine and Insanity" (1876); "Normal Standard of Women for Propagation" (1876); and "Physical Development" (1888).

Allibone, Samuel Austin, bibliographer, born in Philadelphia, Pa., April 17, 1816; died in Lucerne, Switzerland, Sept. 2, 1889. He was educated for mercantile pursuits and conducted an extensive business till 1853, when he began to apply himself wholly to the execution of a literary project he had formed early in life.

In 1854 he published the first of three volumes of his "Critical Dictionary of English Literature and British and American Authors," and in 1871 brought out the remaining volumes. In these octavo volumes of more than 1,000 pages each, he gave biographical and critical notices of 46,499 authors. While this work was in preparation he published "A Review by a Layman of a Work entitled 'New Themes for the Protestant Clergy'" (Philadelphia, 1852); "New Themes condemned" (1853); "An Alphabetical Index to the New Testament" (1868); and "The Union Bible Companion" (1871). He likewise made selections of 13,600 passages from 550 authors, and classified them under 435 subjects for his "Poetical Quotations from Chaucer to Tennyson" (1873), and compiled the greater part of the 8,810 quotations from 544 authors, classified under 571 subjects, contained in his "Prose Quotations from Socrates to Macaulay" (1876). He indexed the "Orations and Speeches of Edward Everett" (1850-'59); and the "Life and Letters of Washington Irving" (1861-'64); published "Explanatory Questions on the Gospels and the Acts" (1869); contributed numerous articles to periodicals; wrote tracts and religious essays; and was book editor and corresponding secretary of the "American Sunday-School Union" from 1867 till 1873. After an interval of four years he resumed his office with the "Sunday-School Union," and held it till 1879, when he was appointed librarian of the Lenox Library, New York city, with which he remained until his death.

Anderson, Adna, engineer, born in Ridgeway, Orleans County, N. Y., in 1827; died in Philadelphia, Pa., May 14, 1889. He studied civil engineering, and was employed first as an assistant engineer in the construction of the New York, New Haven, and Hartford Railroad in 1847. From this road he went to the Connecticut River, and then the Mobile and Ohio road, and in 1850 was first employed as a regular engineer on the Michigan Southern Railroad. During the next ten years he was chief engineer of the Tennessee and Alabama road, superintendent of the Central Southern, connected with the Henderson and Nashville, and receiver of the Edgefield and Kentucky. At the outbreak of the civil war he offered his services to the National Government, and his large engineering experience led to his assignment to the military railroad construction corps. He served from June, 1862, till February, 1863, with the Army of the Potomac; during 1863 he was chief engineer of the military railroads in Virginia; in 1864 he was in charge of the military railroads in Mississippi; and from November, 1864, till the close of the war he held the office of chief superintendent and engineer of the



military railroads of the United States. In 1867 he was appointed engineer of the projected railroad bridge at St. Louis, Mo., and he was subsequently chief engineer of the Kansas and Pacific Railroad, general manager of the Toledo, Wabash, and Western, president of the Lafayette and Bloomington, and receiver of the Chicago, Danville and Vincennes road. In 1880 he became engineer-in-chief of the Northern Pacific Railroad, and after the completion of that road he remained with the company as honorary vice-president till about a year before his death, when illness from overwork obliged him to retire.

Arms, William, physician and clergyman, born in Wilmington, Vt. May 18, 1802; died in Du Quoin, Ill., June 21, 1889. He was graduated at Amherst College in 1830, and at Andover Theological Seminary in 1833, was ordained in Boston, and with Dr. Coan sent on a missionary exploring tour to Patagonia. He was unable to establish a mission there, and returned to the United States. In 1835 he set out with his wife on a missionary trip to Java, Sumatra, and Borneo. At Singapore his wife died, and he was further detained by the efforts to obtain permission of the Government to establish missions. He therefore went direct to Borneo, labored several years among the natives as a physician and clergyman, and retired when it was deemed best to place the mission under the control of the Dutch Government. In 1848 he returned to the United States, preached and practiced medicine in Wisconsin in 1849-'59, and passed the remainder of his life in southern Illinois, employed in fruit-raising.

Ashburner, Charles Albert, geologist, born in Philadelphia, Pa., Feb. 9, 1854; died in Pittsburg, Pa., Dec. 24, 1889. He was graduated at the scientific department of the University at Pennsylvania in 1874, as a civil engineer, standing first in his class. In 1872 he was one of the party that made the survey of Delaware river, and on graduating he at once entered the light-house survey service. On the organization of the second geological survey of Pennsylvania in 1874, he was appointed an assistant and assigned to the surveys of Juniata and Mifflin counties. A year later he became assistant State Geologist and had charge of the works in Cameron, Elk, Forest, and McKean counties. In 1880 he was made geologist with charge of the survey of the anthracite coal fields of Pennsylvania, where he originated a method of surveying and representing the geology of that great coal-bed, which received the approbation of mining engineers both in this country and abroad. The ability and skill with which this undertaking was performed led to his being appointed in 1885 geologist in charge of all the office and field work of the survey. Meanwhile he made a careful study of the natural-gas fields, and was an accepted authority on that subject. In the autumn of 1886 he resigned from the survey and entered upon private practice as an expert. He was actively engaged with the Fuel-Gas and Electric Engineering Company of Pittsburg, and was closely associated with the various interests in that direction controlled by George Westinghouse, with whom he organized the Duquesne (Arizona) Copper Company, becoming its general manager. The degree of Sc. D. was conferred upon him by the University of Pennsylvania in 1889, and he was a member of scientific societies, including the American Philosophical Society, the American Geological Society, and the American Institute of Mining Engineers, to whose proceedings he contributed papers. He also contributed to the scientific and technical journals, and prepared more than twenty of the reports of State geological survey.

Atwood, David, journalist, born in Bedford, N. H., in 1815; died in Madison, Wis., Dec. 11, 1889. He was apprenticed to the printer's trade in 1830, removed to Wisconsin and became connected with the Madison "Express" in 1847, was soon afterward appointed editor and manager of the paper, and left it in 1852 to establish the "State Journal," with which he remained until his death. He was a member of the

State Legislature in 1861, United States assessor in 1862-'67, Mayor of Madison in 1868, and on Feb. 15, 1870, was elected representative in Congress as a Republican to fill a vacancy.

Averill, John T., manufacturer, born in Alna, Me., March 1, 1825; died in St. Paul, Minn., Oct. 4, 1889. He was graduated at the Maine Wesleyan University, removed to Minnesota, and engaged in manufacturing; was a State Senator in 1858-'59; entered the national service in August, 1862, as lieutenant colonel of the Sixth Minnesota Infantry, served through the war, and reached the rank of brigadier-general; and was elected Representative in Congress as a Republican in 1870 and 1872.

Babbitt, Benjamin Talbot, manufacturer, born in Westmoreland, N. Y., in 1811; died in New York city, Oct. 20, 1889. He was brought up on a farm, but abandoned it at the first opportunity for mechanical employment, in which he gave evidence of considerable inventive genius. His first patent was for a thrashing machine, and his second for the first mowing machine ever made. In 1843 he began manufacturing saleratus from soda ash, as a substitute for the pearlash previously used, and subsequently he established a soap manufactory in New York. In order to cheapen the cost of production, he set up a machine and foundry plant in Whitesboro' N. Y., at a cost of \$600,000, and there made machinery for use in his factories. He invented a steam canal boat, a rotary steam engine without piston, cylinder, or valves, and a combined steam generator, condenser, and heater.

Baker, Alfred, painter, born in New York city in 1824; died there, Feb. 26, 1889. In 1854, while a reporter on the "New York Herald," he suggested to the chief engineer of the fire department that the causes of large and mysterious fires should be sought systematically. The suggestion was approved by the chief and the police justices to whom he referred it, and Mr. Baker was appointed the first fire marshal of the city without pay. Within a year he demonstrated the usefulness of the office so clearly that the insurance companies contributed a fund for his compensation. He held this office till 1868, when the Legislature made it a part of the city government, and on retiring applied himself to portrait painting, which he had learned without a teacher. In this he became successful, and was employed until his death. Among his best portraits was one of George Walling, ex-superintendent of the police department.

Baker, Peter Carpenter, publisher, born in North Hempstead, N. Y., March 22, 1822; died in New York city, May 19, 1889. He removed to New York city when a boy, was educated in Harlem Academy, entered a book store and learned the printing and publishing trades, and in 1850 joined Daniel Godwin in establishing the law publishing firm of Baker & Godwin. He remained with this firm till 1865, when he founded the firm of Baker, Voorhis & Co., which is still in existence. Mr. Baker published the "Steam Press" periodical during the civil war, in aid of the national cause. He was a founder of the Metropolitan Literary Association, the Eclectic Club, and the Typothetæ; was a member of the Sons of the Revolution and the Union League and Lotus Clubs; an originator and chairman of the committee on erecting the statue of Benjamin Franklin in Printing-House Square. He was active in charitable enterprises, particularly in promoting the Hahnemann Hospital; and he wrote numerous addresses and monographs, including "European Recollections" (1861), and "Franklin" (1865).

Barbour, Oliver Lorenzo, lawyer, born in Cambridge, Washington County, N. Y., July 12, 1811; died in Saratoga, N. Y., Dec. 17, 1889. He was graduated at Fredonia Academy in 1827; was admitted to the bar in 1832; and was reporter of the New York Court of Chancery in 1847-'49, and of the New York Supreme Court in 1848-'76. His publications include: "Equity Digest" (4 vols., Springfield, 1836-'41); "Treatise on Criminal Law" (Albany, 1841; 3d ed., 2 vols., 1883); "Treatise on the Law of Set-Off" (1841);

"Treatise on the Practice of the Court of Chancery" (2 vols., 1843; 2d ed., 3 vols., 1874-'75); "Reports of Cases decided in the Supreme Court of the State of New York" (67 vols., 1843-'76; Digest in 3 vols., 1880); "A Summary of the Law of Parties to Actions at Law" (1864; 2d ed., 1884); and "Digest of New York Reports" (2 vols., 1887). He also brought out annotated editions of "Collyer on Partnership" (1838), "Chitty on Bills" (1839), and Cowen's "Civil Jurisdiction of Justices of the Peace" (1844).

Barlow, Samuel Latham Mitchell, lawyer, born in Granville, Mass., June 5, 1826; died in Glen Cove, Long Island, N. Y., July 10, 1889. He received a public-school education in New York city, served an apprenticeship as a law clerk and student, was admitted to the bar in 1849, began practicing by himself, and from the beginning of his legal career till its close endeavored to settle all cases in his charge privately out of court. He became a favorite with the leading business men of the city at that time, and so came to have cases involving large interests. In 1852 he made a trip to Europe on behalf of an Illinois railroad, and received \$50,000 for his services. A similar trip for the Ohio and Mississippi Railroad yielded him a like sum. At the close of the Franco-German War he received \$25,000 for a half-hour's work on a case involving an American contract to supply the French Government with firearms to the value of \$1,600,000, in which he was successful. Before he was thirty years old he was appointed umpire by the four great trunk railroads, then engaged in a ruinous war of rates, and his skill as a mediator was shown in his success in bringing about a reconciliation between Commodore Vanderbilt and William H. Aspinwall after they had long been waging a bitter war upon each other through their Nicaragua and Pauama schemes. Each gave him \$5,000 for accomplishing a settlement of their differences. His most noted case was that of the English stockholders of the Erie Railway against the Fisk-Gould management in 1871-'72. After the death of Fisk, in January, 1872, the railroad quarters in the Grand Opera House were carried by storm under direction of Mr. Barlow and held against Jay Gould as well as the processes of the court. A suit against Jay Gould for the recovery of \$10,000,000 was compromised by his paying the McHenry stockholders \$9,000,000. For his successful conduct of this case Mr. Barlow was elected a director in the new management, appointed counsel of the new board at a salary of \$25,000 a year, and is reputed to have received \$250,000 for his fee. For his earlier management of claims under the Mexican treaty he is said to have received more than \$200,000. In 1852 he formed a partnership with George R. J. Bowdoin and Jeremiah Laroque, under the firm name of Bowdoin, Laroque, & Barlow. Mr. Laroque died in 1868, and Mr. Bowdoin in 1870. In 1870 Joseph Laroque entered the firm, in 1873 ex-Judge Shipman, in 1881 ex-Judge Choate, and subsequently Solomon Hanford; and at the time of Mr. Barlow's death it was styled Shipman, Barlow, Laroque & Choate. Mr. Barlow acquired a large fortune, was a stockholder in the "Sun" and "World" newspapers, and a Democrat in politics, but never held a political office. He possessed a rare collection of paintings, statuary, and *bric-à-brac* and one of the most valuable private libraries in the country, which was sold by auction in February, 1890, and brought \$82,000. His widow, a daughter of Peter Townsend, died Oct. 21, 1889.

Barum, William H., statesman, born in Boston Corners, Columbia County, N. Y., Sept. 17, 1818; died in Lime Rock, Conn., April 30, 1889. He received a public-school education, was apprenticed to the iron-founder's trade, and subsequently engaged in the manufacture of pig iron, ear-wheels, and other articles in iron, in which he became wealthy. He was a member of the Connecticut Legislature in 1851-'52; Democratic Representative in Congress from the Fourth Connecticut District in 1867-'76; United States Senator, filling the vacancy caused by the death of Senator Orris S. Ferry, in 1876-'79; delegate to the National

Democratic Conventions in 1868, '72, '76, '80, and '84, and chairman of the National Democratic Executive Committee in the canvass of 1880 and 1884.

Bartlett, Sidney, lawyer, born in Plymouth, Mass., Feb. 13, 1799; died in Boston, Mass., March 7, 1889. He was graduated at Harvard College in 1818, studied law, and made a specialty of corporation law. With the exception of a single term in the Legislature in 1851 and his service in the convention chosen to revise the State Constitution in 1853, he confined himself exclusively to the practice of his profession. He was for many years general or advisory counsel for large corporations, including the Union Pacific, Chicago, Burlington and Quincy, and other railroad companies, and within two months of his death he made his last appearance in court in an argument for one of these.

Bass, Lyman Kidder, lawyer, born in Alden, N. Y., Nov. 13, 1836; died in New York city, May 11, 1889. He was graduated at Union College in 1856, and was admitted to the bar in Buffalo in 1858. From 1865 till 1872 he was district attorney, and then was elected Representative in Congress as a Republican. In 1874 he was re-elected. During this period he was member of the committees on railroads and canals, claims, expenditure in the War Department, and of the joint select committee to inquire into the affairs of the District of Columbia. In 1872 he formed a partnership with Wilson S. Bissell, to which Grover Cleveland was admitted in 1874, and in 1876 he retired from the firm on account of failing health and removed to Colorado Springs, where he became general counsel of the Denver and Rio Grande Railroad Company. He made frequent journeys to Mexico for the Mexican National Railroad Company and other corporations, and conducted negotiations between American capitalists and the Mexican Government.

Beale, Joseph, physician, born in Philadelphia, Pa., Dec. 30, 1814; died there, Sept. 23, 1889. He was graduated in medicine at the University of Pennsylvania in 1836, engaged in private practice one year, entered the United States navy as assistant surgeon in 1838, was appointed surgeon-general of the navy in December, 1873, and was retired in 1876 with the rank of commodore. During his career in the navy he was on sea duty seventeen years and one month, on shore or other duty sixteen years and seven months, and was unemployed four years and eight months.

Beard, Henry, artist, born in Ohio, in 1841; died in New York city, Nov. 19, 1889. He was a son of James Henry Beard and nephew of William Henry Beard, artists. He entered the national army in the early part of the civil war, and became a captain in the Thirtieth Missouri Volunteers. After the war he applied himself to painting, making a specialty of animal life, and on removing to New York city about 1877 engaged chiefly in illustrating books and periodicals.

Beecher, William Henry, clergyman, born in East Hampton, Long Island, N. Y., Jan. 15, 1802; died in Chicago, Ill., June 23, 1889. He was the eldest brother of Henry Ward Beecher, was reared in Litchfield, Conn., studied theology with his father, was ordained in 1830, and filled his first pastorate in Newport, R. I. Early in his ministerial career his attention was directed to the cause of home mission work in the West, and in 1839 he removed to the Western Reserve in Ohio, under the auspices of the American Home Mission Society. He established and built the First Congregational Church in Toledo, spent several years in freeing from debt churches that had been organized by settlers from New England, co-operated actively with the abolition leaders, and remained in that field till 1857, when a desire to give his children better educational advantages induced him to accept a pastorate in Massachusetts. He filled various appointments in that State till 1870, and then settled permanently in Chicago. Several years ago he was compelled by deafness to retire from pastoral work.

Biddle, William McFume, railroad official, born in Philadelphia, Pa., July 27, 1808; died in Carlisle, Pa., May 13, 1889. He was graduated at Princeton in 1827, soon afterward was appointed to an office in the

Cumberland Valley Railroad Company, and remained with that corporation till his death. He became secretary of the company in 1839, and treasurer also in 1840. In 1858 he was elected major-general of the Fifteenth Division of Pennsylvania militia. At the outbreak of the civil war he was appointed adjutant-general of the State, and in that office organized the Pennsylvania Reserves and other early regiments. In 1862 he resigned this office, and with this exception his railroad service was continuous as well as the longest of any in the United States.

Bishop, Washington Irving, mind-reader, born in New York city, in 1847; died there, May 13, 1889. He went to work in a drug store when a boy, and while there became interested in spiritualism and developed what was considered a remarkable gift of legerdemain. When about twenty years old he gave his first public exhibition in New York city, in which he claimed to expose the trickery of spiritual mediums, the Fox sisters, and the Davenport brothers. Soon afterward he went to Europe, and gave entertainments in the large cities. He claimed to be able to tell a number or word thought of by another, to discover an unnamed article wherever hid, to lead a person to and touch any article that person thought of and kept his mind on, to write down the number of a bank-note in a person's pocket when the person kept his mind on the number, and to perform a variety of other similar feats, always blindfolded and holding one hand of the person whose thoughts he professed to read or follow. Marvelous stories were told of his powers as a mind-reader, and he was believed and denounced in about equal proportions. He traveled through Mexico, Cuba, and a part of South America, and in late years performed many feats besides his regular evening entertainments, such as driving a team of horses through the streets in open daylight in search of hidden objects, though completely blindfolded. His bank-note-number test was his most popular, and apparently mysterious performance. At the time of his death he had just completed writing on a piece of paper the name of a member of the Lamb's Club selected from the minute-book by two other members, the name and book being known only to them. He fainted in a first attempt, and his success in the second was followed by a fatal cataleptic fit.

Blinn, Christian, clergyman, born in Zweibrücken, Germany, in 1829; died in Kansas City, Mo., Nov. 21, 1889. He learned the carpenter's trade in his native city, came to the United States in 1848, followed his trade in New York city while studying for the Methodist Episcopal ministry, and was appointed pastor of the Second Street M. E. Church in 1856. He was highly successful and popular, and untiring in his ministry, and on becoming superannuated he engaged in the building business, acquiring a large fortune. He built the German Methodist Church at Fifty-first Street and Second Avenue, established Brenheim College in Texas and endowed it with \$10,000, and gave \$10,000 to Berea College, in Ohio.

Bliss, Doctor Willard, physician, born in Auburn, N. Y., Aug. 10, 1825; died in Washington, D. C., Feb. 21, 1889. He was named Doctor Willard after the eminent physician, removed to the Western Reserve in Ohio, was graduated at Cleveland Medical College in 1846, practiced one year in Iona, Mich., and then settled in Grand Rapids, where he gained considerable reputation as a surgeon. At the outbreak of the civil war, he was appointed surgeon of the Third Michigan Volunteers. In the autumn of 1861 he became a division surgeon, and from the organization of the Army of the Potomac till after the Battle of Seven Pines he was attached to the staff of Gen. Philip Kearny. He was then ordered on hospital duty in Washington, where he superintended the construction of the Armory Square Hospital and became its surgeon-in-chief. After the war he was connected with the Board of Health of Washington, and became widely known as the champion of a South American cancer cure. Dr. Bliss was one of the physicians and surgeons called to attend President Gar-

field after he was shot on July 2, 1881, and was unrelenting in his professional attentions till the President's death, when with his associates he was called upon for a bill for his services, under an act of Congress making provision for the payment of the medical staff and for the extra labor of the White House employés necessitated by the assassination, he presented one that Comptroller Lawrence felt obliged to reduce in order to apportion the \$57,000 appropriated for the medical staff among them. Dr. Bliss claimed that his private practice had been ruined and his health seriously impaired by his close application to the President, and declined to accept the award made him. At the time of his death a special bill was pending in Congress to compensate him for his services in the Garfield case.

Bliss, Isaac G., missionary, born in Springfield, Mass., July 5, 1822; died in Assouan, Egypt, in February, 1889. He was graduated at Amherst College and Andover Theological Seminary, and was sent to eastern Turkey as a missionary by the American Board in 1845. After successful missionary labors in Turkey and Egypt, he was appointed agent of the American Bible Society in Constantinople in 1869. About a month previous to his death Dr. Bliss went to Egypt for rest. It was chiefly owing to his exertions that the American Bible House in Constantinople was built.

Bliss, Philemon, lawyer, born in Canton, Conn., July 28, 1814; died in St. Paul, Minn., Aug. 25, 1889. He was educated at Hamilton College, studied law and was admitted to the bar, removed to Ohio, became conspicuous in the antislavery movement, and was elected president-judge of the Fourteenth Circuit Court. He was elected to Congress as a Republican in 1854-'56, and served on the Committee on Manufactures. He was appointed by President Lincoln the first Chief Justice of Dakota, in 1861. He subsequently removed to Columbus, Mo., and became a judge of the Supreme Court of that State, and dean of the State University.

Blunt, Asa P., army officer, born in Danville, Vt., in 1828; died in Manchester, N. H., Oct. 4, 1889. He entered the national service as adjutant of the Third Vermont Infantry June 20, 1861; became lieutenant-colonel of the Sixth Vermont Infantry Oct. 15, following, and colonel of the Twelfth Infantry of that State Oct. 4, 1862. He resigned his volunteer commission to accept the appointment of captain and quartermaster in the regular army Feb. 29, 1864, and was promoted major and brevet colonel, March 28, 1867, for services in the battles of Lee's Mills and Savage Station, Va., and during the war. In the volunteer service he was brevetted major, lieutenant-colonel, colonel, and brigadier-general June 9, 1865, for faithful and meritorious services. After the war he was on duty in connection with the national cemeteries, and at Fort Leavenworth, and at the time of his death he was department quartermaster in Boston.

Booth, Mary Louise, editor, born in Yaphank, Long Island, N. Y., April 19, 1831; died in New York city, March 5, 1889. She was a daughter of William Chatfield Booth, who established the first public school in Brooklyn, N. Y. She learned French, German, and Latin, and began translating from those languages at an early age. She was a teacher in her father's school when fourteen years old, and soon afterward gave up teaching to study history, languages, and the natural sciences, and for literary work. Among her earliest translations were Mery's "André Chenier," Cousin's "Life and Times of Mme. de Chevreuse," Mannier's "Russian Tales," and Edmond About's "Germaine" and "King of the Mountains." She wrote tales and sketches for newspapers and magazines, and in 1856 published "The Marble-Workers' Manual," and "The Clock and Watch-Makers' Manual," both translated from the French. While translating and writing for the magazines, she also prepared a "History of the City of New York" (1859). This work has been revised and enlarged several times, the last edition appearing in 1880. The open-

ing of the civil war, her familiarity with general history and her skill in translation led her to undertake a special task in aid of the national cause. This involved the collection, translation, and publication of important works by French authors who had espoused the Union cause, and who sought to create in Europe a sentiment in favor of the Federal Government. The first of these works, Count Gasparin's "Uprising of a Great People," was brought out two months after the attack on Fort Sumter, and received with a commendation far in excess of her anticipations. This was followed by a translation of Gasparin's "America before Europe" (1861); Augustino Cochin's "Results of Emancipation" and "Results of Slavery" (1862); Edward Laboulaye's "Paris in America" (1865); two volumes of Henri Martin's "History of France," treating of "The Age of Louis XIV" (1864); and two others of the same work entitled "The Decline of the French Monarchy" (1866). She also corresponded with friends of the United States Government in England and France and published their letters in the New York daily newspapers and in pamphlet form through the Union League Club. During this period she translated the Countess Gasparin's "Vesper," "Camille," and "Human Sorrows," and Count Gasparin's "Happiness." From 1867 till her death she edited "Harper's Bazar." She published a translation of Henri Martin's abridged "History of France," in six volumes (1880).

Bowditch, Jonathan Ingersoll, scientist, born in Salem, Mass., in 1806; died in Jamaica Plain, Mass., Feb. 19, 1889. He was a son of Dr. Nathaniel Bowditch, the mathematician. He was educated for a mercantile career, and spent many years as supercargo of vessels engaged in the Indian trade. After retiring from the sea he became president of an insurance company and manager of several large estates. He inherited a taste for scientific investigation, which he followed to the close of his life, editing several editions of his father's "American Navigator," and becoming a fellow and treasurer of the American Academy of Art and Science. He assisted his brothers in maintaining the valuable library of their father after his death as a library of public reference, till it became a part of the Boston Public Library, and after 1887 gave \$500 annually to enlarge the collection.

Bowen, Levi Fowler, lawyer, born in Homer, N. Y., in 1808; died in Lockport, N. Y., Dec. 27, 1889. He removed to Lockport to practice law in 1832, was elected judge of the Court of Common Pleas under the old State Constitution, became a member of the Assembly in 1845, was appointed a Supreme Court judge to fill a vacancy in 1852, and was afterward elected for a full term. In 1857 he served on the bench of the Court of Appeals, in 1861 was appointed provost-marshal of the Twenty-eighth New York District, and in 1873 was a second time elected judge of the county court. Judge Bowen was a member of the State Constitutional Convention in 1867-'78, and President of the National Exchange Bank of Lockport.

Breed, William Pratt, clergyman, born in Greenbush, N. Y., Aug. 13, 1816; died in Philadelphia, Pa., Feb. 14, 1889. He was graduated at the University of the City of New York in 1843, and at the Princeton Theological Seminary in 1847, was installed pastor of the Second Presbyterian Church at Steubenville, Ohio, preached there till 1856, and then went to the West Spruce Street Presbyterian Church at Philadelphia, with which he continued till his death. He was twice elected Moderator of the Synod of Philadelphia, and in 1883 was Moderator of the Synod of Pennsylvania. It was he who brought about the erection of a monument to John Witherspoon in Fairmount Park, Philadelphia, and in its aid he delivered "A Historical Discourse on Presbyterians and the Revolution" in seventy pulpits, and presented the cause also in ten synods and presbyteries. Beyond special tracts and newspaper and review articles his writings are comprised in sixteen volumes, half of which are specially adapted to the young.

Bridgman, Laura Dewey, blind and deaf mute, born in Hanover, N. H., Dec. 21, 1829; died in South Boston, Mass., May 24, 1889. She was in possession of all her faculties till two years of age, and was then suddenly prostrated by a fever, which deprived her of the senses of sight and hearing, and greatly weakened those of taste and smell. For five months she lay in a darkened room, and two years had passed before her general health was fully restored. She then began showing a quick mind, an interest in things about her, and a desire to learn. Her necessities forced her to make a motion language of her own, and she soon became able to communicate her desires and distinguish each member of the family. She also learned to do a little sewing and knitting. About this time Dr. Samuel G. Howe, Director of the Perkins Institution for the Blind, in South Boston, heard of her, and visiting her parents expressed a desire to undertake her education on plans of his own. On receiving their consent he took her to the institution Oct. 12, 1837, and began a course of training, the form and results of which have proved of phenomenal interest to educators and scientists throughout the world. The process of teaching was necessarily so slow that, in spite of her remarkable quickness of apprehension and eagerness to learn, she had attained only about the same command of language as that possessed by ordinary children at three years of age, when she had been under instruction twenty-six months and was ten years old. Her sense of touch became more acute, and a marked improvement was noted in the senses of smell and taste. She was from the beginning of her training a most willing pupil and patient imitator, seeming to realize the purpose of the simple exercises prepared for her. Dr. Howe watched her constantly, studying new devices to enable her to comprehend the emotions, desires, and fresh impressions that followed the daily enlargement of her intellectual powers. When she had acquired a sufficient command of the finger and raised-letter languages to enable her to converse with those about her, she was allowed a larger circle of associates and acquaintances; and the development of her character and enlightenment of her mind were greatly aided thereby. Through the solitary sense of touch, her spiritual nature, moral sense, and intellect were harmoniously developed. The babe whom a fever seemed to have isolated from her kind and doomed to life-long darkness and ignorance became, through the skillful efforts of Dr. Howe and the teachers whom he specially selected for her, a useful and loving woman, pure and deeply religious in life and thought. Besides learning to read and write, she became a good seamstress, was skilled in fancy needle-work, operated a sewing-machine, and did various kinds of housework. Her range of reading was quite extended, and enabled her to converse without embarrassment with eminent people from all parts of the world who visited her. Many scientific and other works have been published on her remarkable case since Charles Dickens called attention to her in his "American Notes," and the King of Prussia sent Dr. Howe a special gold medal for his marvelous achievement in educating her. She spent the greater part of her time in the Perkins Institution for the Blind, and remained in good health till 1876, when the death of Dr. Howe greatly depressed her, but she continued remarkably cheerful to the close of her life.

Brigham, Mary Ann, educator, born in Westborough, Mass., Dec. 6, 1829; died near New Haven, Conn., June 29, 1889. She was educated at Mt. Holyoke Female Seminary, was a teacher in that institution in 1857-'58, taught nearly two years in a private school at Newton, Mass., was principal of Ingham University at Leroy, N. Y., nearly three years, and in 1863 became an assistant in Prof. Charles E. West's Brooklyn Heights Seminary, where she taught consecutively till June 6, 1889, when she resigned to accept the presidency of Mt. Holyoke Female Seminary, to which she had been elected in March. She had been

active in procuring a college charter for the Mt. Holyoke Seminary and establishing a collegiate course there. She declined several tempting offers of promotion, including that of the presidency of Wellesley College. She was on her way to make farewell calls on her Brooklyn friends when she was killed in a railroad accident.

Brinley, Francis, lawyer, born in Boston, Mass., Nov. 10, 1800; died in Newport, R. I., June 15, 1889. He was graduated at Harvard College in 1818, was admitted to the bar in 1821, was a member of the Legislature in 1832, 1850, and 1854, and of the State Senate in 1833, 1853, and 1863; served in the Constitutional Convention in 1853, was a member of the Common Council of Boston three years and its president two years, and was commander of the Ancient and Honorable Artillery Company for three terms. After removing to Newport he was elected a member of the Rhode Island Legislature in 1869, Vice-President of the Rhode Island Historical Society in 1881, and also President of the Newport Historical Society and of the Redwood Library. He was an accomplished writer, a forcible debater, and an impressive public speaker.

Brooklesby, John, educator, born in West Bromwich, England, Oct. 8, 1811; died in Hartford, Conn., June 21, 1889. He was brought to the United States when nine years old, was graduated at Yale College in 1835, became tutor in mathematics there in 1838, and in 1842 was appointed Professor of Mathematics and Natural Philosophy in Trinity College, Hartford. He held the latter office till 1873, and was then chosen Professor of Natural Philosophy and Astronomy, continuing in that chair till 1882. He contributed numerous technical articles to scientific publications, particularly to the "Journal" of the American Association for the Advancement of Science, and published "Elements of Mineralogy" (New York, 1848); "Views of the Microscopic World" (1850); "Elements of Astronomy" (1855); and "Elements of Physical Geography" (1868).

Brown, George Loring, painter, born in Boston, Mass., in 1814; died in Malden, Mass., June 25, 1889. He began his art career at an early age as an engraver on wood in his native city, and for many years was employed engraving illustrations for juvenile publications. The charm of his work attracted the attention of a wealthy patron of art, who encouraged him to study painting and enabled him to take a course of instruction abroad. On his return he opened a studio in Boston, but soon afterward went to Europe again, studied in the Louvre, passed several years in Florence, and returned home in 1860. He painted more than fifty landscapes while living in Italy. His "Crown of New England" was bought by the Prince of Wales during his visit to the United States, and "The Bay of New York" was bought by several New York merchants and presented to the prince before his departure. "A Moonlight Scene" received a prize on its exhibition by the Art Union of Rome, and is now in its possession. His other noted works comprise "The Doge's Palace and Grand Canal," "Palermo," "Atranti," "Bay of Naples," "Fountain of Trevi," "Venice," "Sunset, Genoa," and "Niagara by Moonlight."

Brown, John Calvin, lawyer, born in Giles County, Tenn., Jan. 6, 1827; died in Red Boiling Springs, Tenn., Aug. 17, 1889. He was graduated at Jackson College in 1846, admitted to the bar, and began practicing in partnership with his brother, Neil S. Brown. In 1860 he was a Bell and Everett presidential elector, and in the following February was a Union candidate for the convention called to determine what course Tennessee should pursue in the impending struggle. In this convention he made a vigorous plea for adhesion to the Union. When the secession of Tennessee was claimed, he joined the Confederate army as a captain, fought through the war, attained the rank of major-general, and was three times wounded. After the war he became a railroad surveyor, was promoted till he reached the presidency of the Nashville Rail-

road, afterward engaged in railroad building in Tennessee, then superintended the eastern and western extension of the Texas Pacific Railroad, and for a time was receiver of the entire Texas Pacific system. He was president of the State Constitutional Convention in 1870, and was elected Governor in 1870 and 1875. After retiring from the executive chair he was appointed general counsel for the Texas Pacific Railroad and subsequently became its vice-president, a second time its receiver, and its president and general manager, holding the last office till the spring of 1883, when he resigned to accept the presidency of the Tennessee Coal, Iron, and Railroad Company.

Brown, Oscar Frank, missionary, born in Perry township, N. Y., Sept. 2, 1837; died in Amityville, Long Island, N. Y., Sept. 22, 1889. He removed to New York city early in life, and for several years carried on a banking and commission business. While so engaged he became interested in religious work and began a mission in a tenement house in Eleventh Avenue, in which he gathered in two years, by personal effort, a congregation of 700 persons. From this tenement-house mission grew the Church of the Redeemer in West Fifty-second Street and a Sunday-school of nearly 600 pupils. His efforts as a missionary were so successful that he determined to apply himself wholly to religious work in the tenements and to enter the ministry. He accordingly took a course in theology, and in 1883 was ordained a minister of the Reformed Episcopal Church. A few years afterward exposure and devotion to his work undermined his health and forced him into a retirement.

Bullock, William Fontaine, lawyer, born in Fayette County, Ky., Jan. 16, 1807; died near Shelbyville, Ky., Aug. 9, 1889. He was graduated at Transylvania University in 1824, studied law, was admitted to the bar in 1828, and began practice in Louisville. He was a member of the Legislature in 1838, 1840, 1841, and 1843, was judge of the Fifth Judicial District of Kentucky from June 27, 1846, till Jan. 1, 1858, and was a professor in the Law School of the University of Louisville from 1849 till 1870. Judge Bullock drew up the bill for the establishment of the Kentucky Institution for the Education of the Blind (founded Feb. 5, 1842), and was its president from its organization till 1864 and again from 1884 till his death; drew up the bill for the establishment of the American Printing House for the Blind (opened Jan. 20, 1858, and made a national institution March 3, 1879), was its first president and a trustee till his death; and also prepared the bill for a department for colored children in the Institution for the Blind in 1884.

Burnes, James Nelson, lawyer, born in Indiana, Aug. 22, 1832; died in Washington, D. C., Jan. 24, 1889. He was removed to Platte County, Mo., when a child, was graduated at the Harvard Law School in 1853, and practiced his profession actively for twenty years. In 1856 he entered official life as circuit attorney, was a Buchanan and Breckenridge presidential elector the same year, served as judge of the Court of Common Pleas from 1868 till 1872, and was elected to Congress from the Fourth Missouri District as a Democrat in 1883, 1885, and 1887. During his service in Congress he was a member of the committees on Education, Appropriations, and Revision of the Laws, of the select committee on existing labor troubles, and of the Commission on Ordnance and Gunnery.

Cabell, James Laurence, physician, born in Nelson County, Va., Aug. 26, 1813; died in Overton, Va., Aug. 13, 1889. He was graduated at the University of Virginia in 1833, studied medicine in Paris, and was elected Professor of Anatomy and Surgery in the University of Virginia. In 1846 he was elected chairman of the faculty. During the civil war he was surgeon in charge of the military hospitals of the Confederacy; in 1878 he was chairman of the National Sanitary Conference held at Washington to consider the yellow-fever epidemic that raged in Southern cities; and in 1879 was appointed a member of the National Board of Health constituted by Congress that year, was elected president by his associates, and re-

tained the office till his death. Besides numerous reports, he published "The Testimony of Modern Science to the Unity of Mankind" (New York, 1858).

Caldwell, Samuel Lunt, clergyman, born in Newburyport, Mass., Nov. 13, 1820; died in Providence, R. I., Sept. 26, 1889. He was graduated at Waterville College (now called Colby University) in 1839, and at Newton Theological Seminary in 1845. In 1846 he was ordained pastor of a Baptist church in Bangor, Me., where he remained twelve years, and, after holding the pastorate of the First Baptist Church in Providence, R. I., from 1858 till 1872, became Professor of Church History in Newton Theological Seminary. In the autumn of 1873 he was elected President of Vassar College. In 1885 he resigned that office and removed to Providence.

Calvert, George Henry, author, born in Baltimore, Md., Jan. 2, 1803; died in Newport, R. I., May 24, 1889. He was a lincal descendant of George Calvert, the first Lord Baltimore, and on his mother's side of the painter Rubens. He was graduated at Harvard College in 1823 and afterward studied at Göttingen. On his return to Baltimore he became editor of the "American," and while holding this office several years published "Illustrations of Phrenology," the first American treatise on the subject (1832), several poems, sketches of travel, and translations from Goethe and Schiller. In 1843 he established himself permanently in Newport, and in 1853 became the first Mayor of the city. As he had inherited a considerable fortune from his parents, he spent the remainder of his life in travel, literary work for its own pleasure, and old-fashioned generous hospitality. He was a pioneer in calling attention to and discussing the school of hydropathy, interested himself in all phases of current thought, and was a frequent contributor to the periodicals. His published works include "A Volume from the Life of Henry Barclay" (1833); "Don Carlos," a metrical version from the German (1836); "Count Julian," a tragedy (1840); "Cabrio" (1840); "The Battle of Lake Erie," oration (1853); "Joan of Arc" (1860); "Arnold and André," historical drama (1864); "Goethe, his Life and Works" (1872); and "Wadsworth, a Biographical Study" (1878).

Cameron, Simon, statesman, born in Maytown (now Donegal), Lancaster County, Pa., March 8, 1799; died there, June 26, 1889. He was an orphan when nine years old, and was adopted by Dr. Grahl, of

Sunbury, Pa., who proposed to educate him for a physician and to leave him his own practice; but when seventeen years old young Cameron ran away and apprenticed himself to Andrew Kennedy, then publishing the Northumberland "Gazette." In the following year he went to Harrisburg and found employment in the office of the "Republican," and while working there became acquainted with Samuel D. Ingham, Secretary of State of



Pennsylvania, afterward Secretary of the United States Treasury. Mr. Ingham, who owned the Doylestown "Democrat," induced the young printer to become his editor, and, after re-establishing the paper, Mr. Cameron removed to Washington to gratify an ambition to study practical politics. He secured work as a compositor on the "Congressional Record," and applied all his leisure to making the acquaintance of public men and corresponding for the Doylestown "Democrat." Breaking down with hard work, he

returned to Harrisburg for rest, resumed his former place on the "Republican," and in a short time bought the paper. He changed its name to the "Intelligencer" and advocated high tariff and the presidential candidacy of John C. Calhoun. The Legislature elected him State printer, and, holding the office for five years, he used its returns to become a contractor for the construction of several sections of the Pennsylvania Canal. While engaged on this work he became adjutant-general of the State. In 1832 he began building a canal between the Mississippi river and Lake Pontchartrain, near New Orleans, and the same year was sent for by President Jackson for a consultation on national politics. Through his efforts Pennsylvania and other States urged the President to accept a second term. Calhoun was set aside for Martin Van Buren as candidate for Vice-President and James Buchanan was elected United States Senator. Mr. Cameron's political power being thus established, he sold out his Lake Pontchartrain contract, concentrated his financial interests within his native State, founded a bank in Middletown, and aided in organizing the Harrisburg and Portsmouth Railroad. In 1845 he was elected United States Senator to succeed Mr. Buchanan, whom President Polk had called to his Cabinet as Secretary of State, and in his first term he acted with the Democrats on important party questions, such as the Missouri Compromise bill. He also voted in favor of the notice to England to terminate the joint occupancy of Oregon, opposed the settlement of the Oregon controversy by ceding to England the region between latitude 54° 40' and 49° north, and advocated the war with Mexico. On the expiration of this term he became active in the People's party, and in 1856 was returned to the Senate as a Republican, though the new party was defeated in his State. In 1860 his name was presented at the National Republican Convention for the presidential nomination. In the canvass he gave hearty support to Mr. Lincoln, who after the inauguration appointed him Secretary of War. He held this office till Jan. 11, 1862, when he was appointed United States Minister to Russia, where he rendered the national cause important service. In November following the House of Representatives censured one of his official acts, for which the President and Cabinet assumed equal responsibility, whereupon he resigned and returned home. In 1863 he aided in checking a scheme for the impeachment of President Lincoln for inefficiency. In 1866 and 1872 he was re-elected United States Senator, and in the latter year succeeded Charles Sumner as chairman of the Committee on Foreign Relations. In 1877 he resigned his seat and was succeeded by his son, James Donald Cameron. He was a staunch advocate of the nomination of Gen. Grant for a third term in 1880. In 1887 he made the last of his favorite summer trips to Europe and the West Indies, and on March 8, 1889, he celebrated his ninetieth birthday heartily with his old friends and neighbors.

Campbell, John Archibald, lawyer, born in Washington, Wilkes County, Ga., June 24, 1811; died in Baltimore, Md., March 12, 1889. He was graduated at the University of Georgia in 1826, was a student at the United States Military Academy a short time, removed to Florida and studied law, and was admitted to the bar by a special act of the Legislature in 1829 on account of being a minor. He began practicing in Montgomery, Ala., and subsequently removing to Mobile had charge of the settlement of a large number of land-titles that were complicated by the obscurity of the early Spanish grants. In 1836 he was elected a member of the State Legislature, and in 1853 was appointed an associate justice of the United States Supreme Court to fill a vacancy. He held this office till the spring of 1861, when he resigned, returned South, and was appointed Assistant Secretary of War in the Confederate Government. In February, 1865, he was one of the Southern commissioners in the Hampton Roads. After the war he was arrested and confined in Fort Pulaski, and, on being released on parole, settled in

New Orleans to practice. Among his opinions while a Supreme Court judge was a celebrated one on what is legally known as the great "State case"—the States of New York and Pennsylvania against Louisiana—which established his view of the rights of the States under the Federal Constitution.

Capen, Francis L., astronomer, born in Sterling, Mass., March 17, 1817; died in Boston, Mass., July 31, 1889. He was graduated at Harvard College, where he took a Boylston prize for elocution in 1839. He made a special study of astronomy and atmospheric changes, and obtained considerable reputation for the accuracy with which he predicted approaching storms. In 1870 he visited Europe to observe the eclipse of Dec. 20, passed the winter of 1870-71 on the island of Malta, where he continued his storm and weather predictions, and studied the phenomena of earthquakes. He calculated the time for the eruption of Vesuvius in March, 1871, published his prediction in the "Naples and Florence Observer" the same month, and reached Naples in time to see the display in April. He made interesting astronomical discoveries.

Carter, Robert, publisher, born in Earlston, Scotland, in November, 1807; died in New York city, Dec. 28, 1889. He received an academic education, taught for some time in his native city, and on removing to New York city became a tutor in Columbia College. In 1834 he opened a book store on the present South Fifth Avenue, and his business soon obliged him to seek larger quarters at the corner of Canal and Mercer Streets. In this store he began publishing, and brought out reprints of "Symington on the Atonement and Intercession of Jesus Christ" and D'Aubigné's "History of the Great Reformation." He was soon again forced into larger quarters, and in 1856 made his fourth removal and established himself at Broadway and Spring Street. In 1848 he took his brothers Walter and Peter into partnership, and in 1874 his son Robert Carter, Jr., the firm name being Robert Carter & Brothers. The firm has entered largely into the publication of theological and religious works, representing every evangelical denomination. Mr. Carter survived all his early contemporaries, was the oldest living manager of the American Bible Society, and was a trustee of the Board of Foreign Missions of the Presbyterian Church.

Cassidy, Lewis Cochran, lawyer, born in New York city, Oct. 27, 1829; died in Philadelphia, Pa., Nov. 18, 1889. He removed to Philadelphia when a child, and was graduated at the Central High School in 1842. He was admitted to the bar in 1849, and applied himself wholly to criminal practice, and it is said that he never lost a case. Before he was twenty-five years old he was elected to the Legislature as a Democrat. In 1856 he was a candidate for district-attorney of Philadelphia County, but the office was awarded his opponent after a contest. In 1860 he was a delegate to the National Democratic Convention that met in Charleston, and was one of those who assembled in Baltimore after the party breach. He supported Stephen A. Douglas for the presidency, and through the civil war was a war Democrat, and an active abolitionist. Under his former law-student, Gov. Pattison, he became Attorney-General of Pennsylvania, and in 1880 was a delegate to the National Democratic Convention. The latter years of his life were occupied with corporation and civil practice.

Cazauran, Augustus R., playwright, born in Bordeaux, France, Oct. 31, 1820; died in New York city, Jan. 27, 1889. He was graduated at Dublin University in 1848, and came to the United States. Being an expert stenographer, he found employment on the New York "Herald" as law reporter, dramatic critic, editorial writer, and Crimean War correspondent till 1858, when he became associated with Benn Pitman in the preparation of text-books on stenography in Newport, Ohio. Subsequently he returned to journalism, and was employed on the Cincinnati "Enquirer" and the Memphis "Argus," becoming editor of the latter just before the outbreak of the civil war. He was taken prisoner on the capture of Memphis by the na-

tional troops and sent to North Cairo; was arrested by the military authorities at St. Louis on a charge of having sent quinine through the Union lines to the Confederates; was again arrested at Norfolk on a charge of which he was acquitted; was employed some time by Gen. B. F. Butler at Fort Monroe, and then sent through the Confederate lines at Richmond, when he was arrested as a spy; and after being imprisoned several months in Castle Thunder, was exchanged. Reaching Washington in a destitute condition, he was employed on the "Chronicle" of that city, and reported the last public speech of President Lincoln, and witnessed and made the first report of his assassination. During the trial of the Lincoln conspirators he reported the proceedings for the "Associated Press." He returned to New York in 1869, and became a reader, writer, and adapter of plays for the Union Square Theatre in New York city. He had already produced plays founded on Miss Braddon's novels "Aurora Floyd" and "John Marchmont's Legacy," and a version of "No Thoroughfare," all of which were successfully presented. While connected with the Union Square and, briefly, with the Madison Square Theatre he adapted many plays, of which the following were the most popular: "Miss Multon," from Belot; "The Danicheffs," from Dumas; "The Mother's Secret," from Sardou's "Seraphine"; "The Man of Success," from Feuillet's "Montjoy"; "The Celebrated Case"; "French Flats"; "Daniel Rochet"; "A Parisian Romance"; "Felicia"; "The Creole"; "The Lost Children"; "Mother and Son"; "The Rantous"; and "The Martyr." He also wrote the drama "One Wife" for Charlotte Thompson.

Chandler, Peleg Whitman, lawyer, born in New Gloucester, Me., April 13, 1816; died in Boston, Mass., May 28, 1889. He was graduated at Bowdoin College in 1834, studied law, and was admitted to the Suffolk County, Mass., bar in 1837. While a student he introduced the novelty in journalism of reporting law proceedings, and for ten years was law reporter of the Boston "Advertiser." He also established "The Law Reporter," in the year of his admission to the bar, and conducted it for ten years. From student days till his death he maintained an active connection with journalism, and at one time purchased the "Advertiser," and was its largest stockholder for many years. He was a member of the Legislature from 1840 till 1846, and again in 1862-63, and of the Common Council from 1843 till 1846, serving the last two years as its presiding officer. In 1846 he was chosen city solicitor, and held that office till Nov. 21, 1853, when he resigned, but was retained as special counsel in the management of city affairs for several years. He revised the city charter in 1854, and in the same year was appointed a member of the Executive Council. About twenty years ago deafness compelled him to abandon jury cases in the courts, but he continued to do a large business as counsel.

Chandler, Ralph, naval officer, born in New York, Aug. 23, 1829; died in Hong-Kong, China, Feb. 10, 1889. He was appointed a midshipman in the United States navy Sept. 27, 1845; was promoted passed midshipman, Oct. 6, 1851; master, Sept. 15, 1855; lieutenant, the following day; lieutenant-commander, July 16, 1862; commander, July 25, 1866; captain, June 5, 1874; commodore, March 1, 1884; rear-admiral, Oct. 7, 1886; and was appointed to the command of the Asiatic squadron, Nov. 22, 1886. During his service in the navy he was on sea duty twenty-seven years and five months, on shore or other duty fourteen years and five months, and was unemployed three years and seven months. He participated in the blockade and capture of Mazatlan and in two skirmishes in its vicinity, in the Mexican War; surveyed the Panama river and its affluents while on coast-survey duty; was a lieutenant on the United States steamship "Vandalia" in the engagement off Port Royal on Nov. 7, 1861; was on the "San Jacinto" in the attack on the Sewell's Point batteries, and the capture of Norfolk in 1862; and as lieutenant-commander was in command of the "Huntsville,"

"Lenapee," "Maumee," in which he took part in the bombardment and capture of Fort Fisher and the works for the defense of Wilmington, and the monitor "Sangamon," with which he cleared the James river of torpedoes almost up to Richmond. After the civil war, he discovered and surveyed the Cultivator shoal off Cape Cod; was executive officer at the Brooklyn Navy Yard from 1870 till 1874; commanded the "Swatara" on the expedition to observe the transit of Venus, and landed scientific parties on Desolation and Chatham islands, at New Zealand, and Tasmania; hastened to the Auckland Islands to rescue a party of Germans reported to be in distress there, for which he was thanked by the German Government; and was commandant of the Brooklyn Navy Yard from 1884 till his assignment to command the Asiatic squadron.

Chapman, John Gadsby, artist, born in Alexandria, Va., in 1808; died in Brooklyn, N. Y., Nov. 28, 1889. He studied painting in Rome with Gibson, Crawford, and Terry, and on his return to the United States had studios in New York and Washington. While in New York he gave instruction in wood engraving for many years, was a founder of the Century Club, and was elected a member of the National Academy. In 1848 he removed to Rome, Italy, where, excepting brief residences in Paris, he lived till within a few years. Before permanently returning to New York, he made an artistic tour of Mexico. His paintings include "The Baptism of Pocahontas," in the rotunda of the National Capitol; "Sunset on the Campagna"; "Etruscan Girl"; "Vintage Scene"; and "Stone Pines in the Barberini Valley"; and his etchings, "The Return from the Vintage"; "A Monk asking for Alms"; "Italian Goatherds"; "The Gleaner"; "A View on the Campagna"; and "The Departure of Sancho."

Chase, Benjamin, historian, born in Auburn, N. H., July 7, 1799; died there, May 3, 1889. He was apprenticed to the millwright's trade and followed it for several years. He was one of the most active of the early abolitionists in New Hampshire, and in 1835 helped to organize and became treasurer of the Chester Antislavery Society. Subsequently, with a few other abolitionists, he guaranteed the expense of the publication of "The Herald of Freedom" at Concord. In 1869 he published a large illustrated history, of more than 700 pages, of the old town of Chester, on the compilation of which he had been engaged for many years, and which is regarded as an exceedingly valuable contribution to the history of his State. He took an active interest in the work of public education, and did much to promote it.

Chittenden, Simeon Baldwin, merchant, born in Guilford, Conn., March 29, 1814; died in Brooklyn, N. Y., April 14, 1889. Before he became of age he joined a brother in opening a store in New Haven, and he remained there till 1842, when he removed to New York city and established himself in the wholesale dry-goods business, with residence in Brooklyn. He applied himself closely to his business till 1874, and then, on being elected to Congress from the Third New York District as a Republican, to fill the vacancy caused by the resignation of Gen. Stewart L. Woodford, retired from active management. During the civil war he gave unstintingly of his time, labor, and money to uphold the Government; was a founder of the Union Defense Committee of New York and the War Fund Committee of Brooklyn, and was one of the Northern merchants who were black-listed in a Richmond newspaper because of their Union sentiments. He was a founder, and for eight years managing director, of the Brooklyn "Union," which was established in 1863 to promote the national cause. While actively engaged in business he was a founder of the Continental Life Insurance Company and the Continental Bank, a trustee of the United States Trust Company, director of the Union Ferry Company, President of the New Haven and New London Railroad Company, and director of other railroad companies and corporations. He also was a founder of the Church of

the Pilgrims, the Brooklyn Library, and the Long Island Historical Society, and contributed liberally to the support of each. To Yale University he gave \$250,000, including \$100,000 for a new fire-proof library building in 1887, and proportionate sums to the Brooklyn Art Association, Young Women's Christian Association, Children's Aid Society, the Eye and Ear Infirmary, and to Yale University for the endowment of a professorship conditioned that it should not be named after him during his lifetime. His congressional career extended to 1881. During almost the whole of his service he was a member of the Committee on Coinage. He strongly opposed increased coinage, defended the national banking system, opposed the amendment to the resumption act of 1875 requiring the Government to reissue the redeemed legal tenders, and, believing that such reissue would virtually be a new issue, made up a test case for the United States Supreme Court and was there defeated, but on grounds deemed unsound by many constitutional lawyers. He was also instrumental in the erection of the statue of Washington on the steps of the Sub-Treasury building in Wall Street.

Clayton, John Middleton, lawyer, born in Delaware County, Pa., Oct. 13, 1840; died in Plummerville, Ark., Jan. 29, 1889. He was educated in the common schools and in Barton's Seminary at Village Green, Pa., was admitted to the bar, and settled in Jefferson County, Ark. In 1870-'72 he was a member of the State Assembly, in 1872-'74 of the Senate, and in 1876-'86, sheriff of the county, being elected to the latter office five times in succession, the last time having no opposition and polling the entire vote of both parties. In 1888 he was the Republican candidate for Congress from the Second Arkansas District, and, though he did not receive the Governor's certificate of election, both he and his friends claimed that he had been elected. He instituted a contest for the office, and went to Plummerville to take testimony in support of his claim. This occupied him several days, and in the evening of Jan. 29, while sitting at a table to write a letter in his room at a boarding-house, he was shot dead through a window by some person concealed outside of the house. He was a brother of Gen. Powell Clayton, formerly United States Senator from Arkansas. The assassin has not been arrested.

Colcock, William E., lawyer, born in South Carolina; died in Charleston, S. C., June 13, 1889. He was graduated in South Carolina College in 1823, was admitted to the bar, represented Prince William's Parish in the Legislature for several terms, and was for some time Speaker. He was a Representative in Congress from 1849 till 1853. Previous to and during the civil war he was collector of the port of Charleston. He was a member of the National Democratic Convention held in Charleston in 1860, and was one of the most earnest advocates of secession.

Collin, John E., author, born in Hillsdale, Columbia County, N. Y., April 30, 1802; died there, Sept. 16, 1889. He received a common school education, and engaged in agricultural pursuits. In 1834 he was elected member of the Assembly, and in 1845 was elected to Congress from the Twenty-ninth New York District. During 1879-'84 he published four volumes of political history, which are on the shelves of nearly every State library in the country and the libraries of many historical societies.

Collins, Charles Sidney, journalist, born in Utica, N. Y., April 23, 1827; died in Troy, N. Y., June 19, 1889. His father was a manufacturer of carpenters' tools, and the son learned the trade. But at the age of sixteen, impelled by a love of adventure, he shipped before the mast, on a whaler, for a four-years' voyage around the globe. While the vessel was off the coast of California, during the Mexican War, the crew participated in a military movement led by Commodore Stockton. After his return home, young Collins went into business with his father, first in Buffalo, N. Y., and afterward in Ravenna, Ohio. Still later he worked as a tool-maker in Rochester. He was thus employed

in 1854, when Alexander Mann, editor of the Rochester daily "American," inquired who was the contributor that sent in so many remarkably good arti-



cles, and was told by Chester P. Dewey, his associate editor, that it was a mechanic named Collins. The young tool-maker—who, by the way, was the most expert man at the trade in the city—was at once invited to a place on the staff of the "American," which he accepted. Three years later, when that paper was merged in the "Democrat," he became city editor, which place he held until 1864, when for a short time he was agent in New York city for the State Associated Press, and later was on the staff of the Troy "Times." Returning to his post in the office of the "Democrat," he remained there till 1868, when he established the Rochester daily "Chronicle," and was its chief editor till it was consolidated with the "Democrat" in 1870. He then established the "News-Letter," a Sunday-morning paper. Two years later he returned to the Troy "Times," on which paper he was an editorial writer from that time until his death. He was at his desk in the office, writing an article, when the fatal stroke of apoplexy came, and the pen dropped in the middle of a sentence. Mr. Collins, though his school advantages had been small, had the education that comes of a fine memory and much good reading. He was remarkably familiar with the political and financial history of the country, and remembered minutely the careers of our public men; and this, combined with an acutely logical mind, sincerity of conviction, and an agreeable natural style, made him one of the best of journalists.

Cooke, William Henry, clergyman, born in Bloomfield, N. J., in October, 1837; died in New York city, Feb. 22, 1889. He was graduated at the University of the City of New York in 1858, and at the General Theological Seminary of the Protestant Episcopal Church in 1863, and immediately after his ordination was appointed assistant to the Rev. Arthur Cleveland Coxe, D. D., now Bishop of Western New York. From this service he was called to the rectorship of Trinity Church, in Lansingburg, N. Y., where he remained till 1867. He then became one of the assistant ministers of Trinity parish, in New York city, and was appointed to the charge of St. John's Chapel, in Varick Street. He composed a mass service and a burial service, both of which elicited high commendation; wrote numerous articles on the subject of Church music for periodicals, published a book of hymns, and was President of the Church Music Association and the Oratorio Society for nearly fifteen years.

Cox, Samuel Sullivan, statesman, born in Zanesville, Ohio, Sept. 30, 1824; died in New York city, Sept. 10, 1889. He was a grandson of James Cox (who attained the rank of brigadier-general in the American

army of the Revolution, and was afterward a representative in Congress from New Jersey), and a son of Ezekiel Taylor Cox, well known in the early political history of Ohio. He was graduated at Brown University in 1846, studied law and was admitted to the bar in Cincinnati, traveled in Europe from 1850 till 1853, and on his return settled in Columbus, Ohio, and became editor of the "Ohio Statesman," which was then the Democratic organ of the State. In 1855 he was appointed secretary of the U. S. legation at London, but declined the office, preferring the similar one at Lima, Peru, which he occupied about a year. Returning home in 1856, he was elected to Congress as a Democrat, and began his long service in that body on March 4, 1857. By three re-elections he held his membership till 1865, covering two administrations and the period of the civil war. In 1864 he was defeated by Schuyler Colfax as candidate of his party for the speakership of the House of Representatives, and in 1865 removed to New York city. In 1868 he was elected to Congress from the Sixth New York District, and between the election and the assembling of Congress he made another trip to Europe. He was re-elected in 1870, his Republican opponent being Horace Greeley, and was nominated for congressman-at-large in 1872, when the entire Democratic State ticket was defeated; but the death of James Brooks soon afterward caused a vacancy, and he was again elected, and took his seat Dec. 1, 1873. From that time till 1885 he remained in Congress continually, and when, in March, 1885, he was nominated and confirmed as United States minister to Turkey not only his constituents but other admirers throughout the country petitioned the President to withdraw his nomination, that he might continue his congressional work. In the session of 1877-'78 he took upon himself, by a resolution of his own, the work of the new census law; and he was also the author of the plan of apportionment that was adopted by the House. He retained the Turkish ministry but a year, and, returning to New York, was again elected to Congress to fill a vacancy in the Ninth District, and was re-elected in 1888. During his career in Congress he was several times Speaker *pro tem.* of the House; was a promoter of the Life-Saving Service from its inception, and its most constant champion; secured increased pay and vacations without deduction of pay for letter-carriers, and was a regent of the Smithsonian Institution. He was an able debater, and a man of great humor. He was author of "The Buckeye Abroad" (1853); "Puritanism in Politics" (1863); "Eight Years in Congress" (1865); "A Search for Winter Sunbeams" (1870); "Why we Laugh" (1876); "Free Land and Free Trade" (1876); "Arctic Sunbeams" (1882); "Orient Sunbeams" (1882); "Three Decades of Federal Legislation" (1885); "The Isles of the Princes" and "The Diversions of a Diplomat in Turkey" (1887).

Crerar, John, manufacturer, born in New York city, about 1826; died in Chicago, Ill., Oct. 19, 1889. He was of Scotch parentage, and for many years prior to 1862 was a member of the New York firm of Jesup, Kennedy & Co. He was also President of the Mercantile Library Association and a member of the Century and Union League Clubs. In 1862 he removed to Chicago, where he became senior member of the railroad-supply firm of Crerar, Adams & Co., President of the Joliet and Chicago Railroad, director in numerous financial institutions, and a patron and director of religious, educational, and charitable organizations. His only political office was that of Republican presidential elector in 1888. He was never married. During his residence in Chicago he gave away large sums of money annually. His will made liberal bequests to his relatives, business associates, former New York partners, old friends, and the institutions he was interested in, and set apart the remainder of his estate, estimated at \$2,250,000, for the erection and maintenance of a John Crerar Public Library in Chicago, from which sensational novels and skeptical works are to be excluded.

Croly, David Goodman, journalist, born in New York city, Nov. 3, 1829; died there, April 29, 1889. He learned and followed the silversmith's trade a year, studied in the University of New York, and became a reporter on the New York "Evening Post" in 1855. He spent three years with the "Evening Post" and the "New York Herald," and in 1858 established the "Daily News" in Rockford, Ill. Returning to New York, he was city editor and managing editor of the New York "World" from 1860 till 1872, and was afterward editor of the New York "Daily Graphic" till 1878, when failing health compelled his retirement from regular office duties. In 1872 he predicted the financial panic that occurred in the following year, and designated the firm of Jay Cooke & Co. as the one that would first fail. He was a frequent contributor to periodicals. He published a "History of Reconstruction" (New York, 1868), a "Primer of Positivism" (1876), and other books.

Culver, Erastus D., lawyer, born in Whitehall, Washington County, N. Y., in 1802; died in Greenwich, N. Y., Oct. 15, 1889. He was graduated at the University of Vermont in 1826, was elected to the New York Assembly in 1838 and 1841, was elected to Congress in 1845, and was United States minister to Peru from 1862 till 1870. In 1854 he became the second judge of the city court of Brooklyn, and served till 1861, and during the greater part of this time he was member of the firm of Culver, Parker & [Chester A.] Arthur.

Cummin, Hugh Hart, lawyer, born in Liverpool, Perry County, Pa., May 25, 1841; died in Cresson Springs, Pa., Aug. 11, 1889. He removed to Williamsport, Pa., in 1862, studied law, was admitted to the bar in 1864, and practiced till 1878, when he was elected presiding judge of the Lycoming County district for a term of ten years. He brought a large arrearage of business up to date within two years, and at the end of his term had kept the business of the courts well in hand and reduced their annual expenses about half. On retiring from the bench he resumed practice in Williamsport, and was so engaged when the terrible flood of June 1, 1889, swept the West Branch valley. He devoted his entire time and energy to the relief of sufferers by the disaster, worked day and night, was elected treasurer of the Williamsport Citizens' Relief Committee, was appointed one of the State Flood commissioners, and was unanimously selected as resident representative and official executive for the distribution of the public fund to the Conemaugh valley sufferers. He responded at once to the new call of duty, though worn out and broken in health by his arduous labors, and remained at his post till within a month of his death, when he was compelled to retire from active duty, and died almost within sight of the scene of his heroic work.

Curley, James, clergyman, born in Roscommon County, Ireland, Oct. 25, 1796; died in Georgetown, D. C., July 24, 1889. His early education was meager, but a thorough teacher of mathematics settled near his home, and he applied himself with great eagerness to this study, and when, in 1817, he came to the United States he quickly found employment as bookkeeper in Philadelphia. In 1819 he removed to Frederick, Md., to accept the office of teacher of mathematics in the county academy. While so employed he felt a call to become a priest in the Roman Catholic Church, and studied French and Latin. In 1829 he completed his theological studies, and, after being ordained, returned to the college in 1831. He was appointed Professor of Philosophy and Natural Science, and held that chair for forty-eight years. His special subject of investigation was astronomy. He labored enthusiastically to secure an observatory for Georgetown College, and in 1844 succeeded. He first determined the meridian line of Washington. His observations, made before the establishment of the United States Naval Observatory, aided the projectors of that institution in determining a location for it, and have recently been verified by the United States Government astronomers and accepted as accurate by those connected with the English Royal Observatory.

Cutler, William P., abolitionist, born in Marietta, Ohio, July 12, 1813; died there, April 11, 1889. He was a grandson of the Rev. Manasseh Cutler (1742-1823), who was one of the first scientific explorers of the White mountains, took an active part in the settlement of the Northwest Territory, and was a Representative in Congress from Massachusetts in 1800-'04. William was graduated at the Ohio University, was a member of the Ohio Legislature in 1844-'47, Speaker during the last term, member of the State Constitutional Convention in 1850, President of the Marietta and Cincinnati Railroad from 1850 till 1860, and Representative in Congress from July 4, 1861, till March 4, 1863, serving on the committees on militia and on invalid pensions. He was a Presbyterian and an early abolitionist, and introduced a resolution in the General Assembly of his Church in 1857 condemning the doctrine that slavery was sanctioned by the Bible, as a fundamental error with which the Presbyterian Church had no sympathy. He gave much of his time to literary work, and made many political and historical addresses.

Dana, Edmund Lovell, lawyer, born in Wilkesbarre, Pa., Jan. 29, 1817; died there, April 25, 1889. He was graduated at Yale College in 1839, was admitted to the bar in 1841, and practiced in Wilkesbarre till 1846. As commander of the Wyoming artillerists he tendered the services of the company for duty in Mexico in 1846, and served creditably in that country till July, 1848, when he was mustered out, and resumed practice. At the outbreak of the civil war he was major-general of the Ninth Division of Pennsylvania Militia. He was appointed commandant of the State camp of organization and instruction near his home in 1862, elected colonel of the One Hundred and Forty-third Regiment of Pennsylvania Volunteers in October, 1862, and, serving till the close of the war, was mustered out with the rank of brevet brigadier-general. Returning to his home, he practiced law till 1867, when he was elected judge of the Eleventh Judicial District of Pennsylvania, and served ten years.

Davis, John Lee, naval officer, born in Carlisle, Sullivan County, Ind., Sept. 3, 1825; died in Washington, D. C., March 12, 1889. He was appointed a midshipman in the United States navy, Jan. 9, 1841; was promoted passed midshipman, Aug. 10, 1847; master, Sept. 14, 1855; lieutenant the following day; lieutenant-commander, July 16, 1862; commander, July 25, 1866; captain, Feb. 14, 1873; commodore, Feb. 4, 1882; and rear admiral, Oct. 30, 1885; and was retired Sept. 3, 1887. He was on sea duty twenty-six years and eleven months, on shore or other duty fourteen years and ten months, and was unemployed six years and three months. His first actual service was on blockading duty off Mexican ports in 1845-'46. In 1849 he captured a piratical vessel near Macao, China, and from that time till the early part of the civil war he was on home stations and squadrons and on coast-survey duty. On Oct. 12, 1861, while executive officer of the "Water Witch," he was engaged in the attack upon the Confederate ram "Manassas," at the head of the Mississippi river passes, and for his services was offered the command of the "Water Witch," but declined in favor of a senior officer. He was afterward in command of the steamer "Vixen," the gunboat "Wissahickon," and the iron-clad "Montauk," all of the South Atlantic Blockading Squadron, and captured numerous prizes and burned a Confederate schooner loaded with arms in the Little Ogeechee river, besides taking part in the attacks on Forts Wagner, Sumter, Gregg, and Moultrie, and other fortifications and batteries. In February, 1863, he engaged Fort McAllister and sank the privateer "Nashville." After the war he was on duty at the Philadelphia and Washington navy yards, served on the Light-house Board for three years, commanded the flag-ship "Trenton" in the European squadron, and, after his promotion to rear admiral, performed his last duty as commander of the Asiatic squadron.

Dawson, Francis W., journalist, born in London, England, May 17, 1840; died in Charleston, S. C., March,

12, 1889. He entered journalism in London, but, becoming interested in the cause of the Southern States at the outbreak of the civil war, attached himself to the Confederate steamer "Nashville" while she was in English waters. After that vessel had run the blockade at Beaufort he was appointed a master's mate in the Confederate navy. He served a short time at Norfolk, then resigned his commission and enlisted as a private in a battery attached to the Army of Northern Virginia. He rose to the rank of captain, and after the war became a reporter on the Richmond "Examiner" and "Dispatch," then on the Charleston "Mercury," and in 1866 acquired an interest in the Charleston "News," afterward consolidated with the "Courier," and was appointed editor-in-chief. He was a member of the Democratic State Executive Committee for about twenty years, and of the Democratic National Committee for eight years. He was also delegate to the Democratic National Convention at Chicago in 1884. On Nov. 22, 1883, Pope Leo XIII created him a knight of the order of St. Gregory the Great for his efforts in securing the passage of the anti-dueling law in South Carolina. Capt. Dawson was shot and killed by Dr. T. Ballard McDow, in the latter's office, and the doctor was acquitted of the charge of murder on June 29.

Dawson, Samuel Kennedy, army officer, born in Pennsylvania about 1818; died in Orange, N. J., April 17, 1889. He was graduated at the United States Military Academy in 1839, and assigned to the First Artillery as second lieutenant; was promoted first lieutenant, June 18, 1846; captain, March 31, 1853; major, and assigned to the Nineteenth United States Infantry, May 14, 1861; lieutenant-colonel, and transferred to the Fifteenth United States Infantry, July 4, 1863; colonel, commanding Nineteenth United States Infantry; was brevetted captain, April 18, 1847; colonel, Sept. 20, 1863; brigadier-general, March 13, 1865; and was retired for disability contracted in the line of duty, May 11, 1870. In 1839 he served at Plattsburg, N. Y., during the Canadian border troubles; in 1840 on the Maine frontier during the excitement over the boundary dispute; in 1845 accompanied the "army of occupation" to Corpus Christi, Texas; in the Mexican War took part in the battles of Palo Alto, Resaca de la Palma, and Cerro Gordo, and in the siege of Vera Cruz; in 1851-'53 was in the Seminole War in Florida; and in 1859 was in the pursuit of the marauders under the Mexican Cortina. His first service in the civil war was in the defense of Fort Pickens, Fla. In 1863 he was engaged in the Tennessee campaign, and, after being severely wounded in the Battle of Chickamauga, was kept on leave of absence and waiting orders till his retirement.

Day, Benjamin Henry, journalist, born in West Springfield, Mass., April 11, 1810; died in New York city, Dec. 21, 1889. He was apprenticed to the printer's trade, and in 1830 removed to New York city and found employment in the composing room of the "Journal of Commerce," and afterward in those of the "Evening Post" and the "Courier and Enquirer." In 1833 he established a printing office of his own, where he issued, on Sept. 3, the first number of the "Sun" newspaper, which was the first one-cent periodical ever published. Not only was he the pioneer in cheap newspapers, but he was the first to organize a system of newspaper delivery by boys, and the first to use steam power for printing, which he introduced in 1835. He prepared the copy, set the type, and printed by hand the first number of the paper, and by the spring of 1834 he was in a position to engage a reporter and to seek attractions. The first real impetus the paper received was through the publication of the famous "moon hoax," written by Richard Adams Locke in 1835. In 1838 Mr. Day sold the "Sun" to Moses Y. Beach, his brother-in-law, for \$40,000. Two years afterward he established the "True Sun," which he soon sold, then the "Tatler," which did not succeed, and afterward, in conjunction with James G. Wilson, the famous broadside monthly "Brother Jonathan." He reprinted in it English

works of fiction, soon changed it to a weekly, and, after Mr. Wilson's death, began to bring out illustrated editions semi-annually, thus becoming also the pioneer in American illustrated journalism. In 1862 he ceased publishing "Brother Jonathan" because of the increasing costliness of paper and his unwillingness to charge more than one dollar a year for it.

Deane, Charles, author, born in Biddeford, Me., Nov. 10, 1813; died in Cambridge, Mass., Nov. 13, 1889. From 1832 till 1864 he was in mercantile business in Boston. In early life he acquired a taste for American history, and began a collection of books, pamphlets, sermons, and addresses relating to the early history of New England, which is now very valuable. He edited Gov. Bradford's "History of Plymouth Plantation" (1856) and published "Some Notices of Samuel Gorton" (1850); "First Plymouth Patent" (1854); "Bibliography of Governor Hutchinson's Publications" (1857); "Wingfield's Discourse of Virginia" (1860); and "Letters of Phillis Wheatley" (1864). After his retirement from business he published "Smith's 'True Relation'" (1866); "Remarks on Sebastian Cabot's Mapple Monde" (1867); "Memoirs of George Livermore" (1869); and "The Forms in issuing Letters Patent by the Crown of England"; and "Bradford's 'Dialogue on Third Conference'" (1870). He received the degree of LL. D. from Bowdoin College in 1856.

De Lamater, Cornelius Henry, iron founder, born in Rhinebeck, N. Y., Aug. 30, 1821; died in New York city, Feb. 7, 1889. The family removed to New York when he was three years old, and his father found employment in the Phoenix Iron Works as cashier and confidential adviser. The son entered the iron works at the age of sixteen. On the death of Mr. Cunningham, the proprietor, in 1841, young De Lamater and a fellow-clerk, Peter Hogg, formed a partnership, and continued the business till 1857. In 1857 Mr. Hogg retired, and Mr. De Lamater founded the De Lamater Iron Works at the foot of West Thirtieth Street, and personally conducted it till after the civil war, when he retired for a short time. On resuming the management he was sole proprietor till 1873. He then took his son-in-law, George H. Robinson, into partnership, and on his retirement in 1882 admitted his son William. During the civil war he did a great deal of work for the Government, including the building of the famous "Monitor" and the "Dictator," from John Ericsson's plans, and afterward built the "Iron Witch," the first iron steamboat that navigated Hudson river, the machinery for the thirty gunboats ordered by the Spanish Government, the hot-air engines invented by Capt. Ericsson, and a great variety of lift and force power pumps and other heavy pieces of machinery. He was a rapid-transit commissioner in 1876-'77, a member of the Union League Club and of the Society of Mechanics and Tradesmen, and always had a word of encouragement for a struggling inventor.

Desabaye-Chegaray, Eloise, educator, born in Paris, France, Feb. 1, 1792; died in New York city, Jan. 28, 1889. She was descended from the Huguenot family D'Amberbas, which went to San Domingo after the revocation of the edict of Nantes. Her father, Pierre Robert Prosper Désabaye, owned property in San Domingo and lived in Paris. The revolution under Toussaint L'Ouverture deprived him of the estate, and in 1797 he removed with his family to the United States. Eloise was educated in New Brunswick, N. J., and opened the first school of her own in Greenwich Street, New York, in May, 1814. She subsequently removed it to North Moore Street, St. John's Square, Fifteenth Street, and Madison Avenue, and during her long career as an educator taught the children of the best-known families in the city. She married a Frenchman named Chegaray, and, when too old to teach, lived in Philadelphia and New Brunswick till 1887, when she made her home in New York city.

Dewey, Nelson, ex-Governor of Wisconsin, born in Hamilton County, N. Y., in 1814; died in Cassville,

Wis., July 21, 1889. He removed to Wisconsin in 1836, was elected register of deeds in Grant County on its organization in 1837, represented the county in the second Legislative Assembly of Wisconsin Territory, and in 1842 became a member of the Territorial Council, and served in that body till 1846. He was Speaker of the Assembly in 1840 and President of the Council in 1846, was elected the first Governor of the State of Wisconsin in 1848, and re-elected in 1850. Since then he had held no public office excepting those of delegate to nearly every Democratic State Convention and presidential elector in 1888. In the office of Governor in the trying period of the first years of the State's existence his conduct of affairs proved advantageous to the State. He originated many of the business methods that are still practiced in the various departments of the State. He was also elected the first President of the Wisconsin Historical Society in 1849. Mr. Dewey was one of the Pioneers in the lead-mining industry of his State.

Dickerson, Edward Nicoll, lawyer, born in Paterson, N. J., in 1824; died in Far Rockaway, N. Y., Dec. 12, 1889. He was a son of Philemon Dickerson, Governor of New Jersey, and a nephew of Mahlon Dickerson, Secretary of the Navy under President Jackson. He was graduated at Princeton in 1842, studied law, was admitted to the bar in 1845, and removed to New York city in 1852. Early in his legal career he determined to acquire a thorough mechanical and scientific education. Following this resolve, he became an inventor and one of the foremost patent lawyers in the United States. His first case of note was that brought to establish the validity of Samuel Colt's patent for firearms, which he won after a trial of three weeks, with Rufus Choate as opposing counsel. He next won the Wells hat-body case in Philadelphia, and increased his reputation by his defense in the case of *Sickles vs. Burden*, when he was opposed by Francis B. Cutting. After these successes he abandoned his practice for foreign travel and scientific investigation, made a tour of Europe, was the personal guest of the Emperor Nicholas of Russia during a long stay in that country, and visited the principal cities in South and Central America. On his return he patented improvements in steam engines, under which the engines of the sound steamers "Bristol," "Providence," and "Rhode Island" were built, designed a microscope of largely increased power, and, early in the civil war, made memorable protests to Secretary Welles and Congress against the plans decided on for building engines for naval vessels. His position on the "expansion" and "non-expansion" controversy was subsequently proved to be correct. In 1873 he returned to the bar, and from that time till his death was engaged in patent cases, among them the suit of the Atlantic and Pacific Telegraph Company *vs.* George B. Prescott *et al.*, involving the right of the Western Union Telegraph Company to use the quadruplex system of transmission, that of the American Bell Telephone Company *vs.* the Pan-Electric, the People's, the National Improved, the Molecular, the Clay Commercial, and the Dolbear companies, and those involving electrical inventions in which he was counsel for Thomas A. Edison and the Western Union, Gold and Stock, and other companies.

Docharty, Gerardus Beekman, educator, born in Flushing, Long Island, N. Y., June 18, 1804; died in Hempstead, N. Y., March 8, 1889. He was educated by his father, James Docharty, a graduate of Trinity College, Dublin, and was appointed assistant Professor of Mathematics in St. Paul's College, Flushing, in 1823. In 1830 he became principal of Oyster Bay Academy; in 1836, principal of Union Hall Academy in Jamaica, Long Island; in 1838, principal of Hempstead Academy; in 1843, proprietor of St. Thomas's Hall, a boys' school in Flushing, then owned by the Rev. Francis L. Hawks, and in 1848 was appointed Professor of Mathematics in the New York Free Academy. He held the latter office continuously for thirty-three years. Prof. Docharty was the author of a complete series of mathematical text-books, including an

"Arithmetic," "Algebra," "Geometry and Trigonometry," "Analytical Geometry," and the "Differential and Integral Calculus." He received the degree of LL. D. from Dickinson College.

Dolaro, Selina, singer, born in London, England, in 1853; died in New York city, Jan. 23, 1889. She studied music with an Italian master and at the Paris Conservatory, and made her first appearance on the stage at the Lyceum Theatre, London, as the Spanish princess in "Chilperic," Jan. 20, 1870. She achieved success in her first efforts, and then sang the principal parts in "Genevieve de Brabant," "Mme. Angot," "La Perichole," "Carmen," and "Trial by Jury." After singing in the Philharmonic, Royalty, and Folly Theatres in London, and managing the two last named for a season each, she made a provincial tour. Her first appearance in the United States was at the Academy of Music, New York, as Carmen, in Italian, Oct. 27, 1879. Subsequently she sang in popular operas till 1884, when the first symptoms of consumption developed, and, in the hope of sparing her voice, she turned her attention to the drama, both as actor and author. She appeared at the Bijou Opera House in "The Snake Charmer"; produced at the New Park Theatre "Justine," an original adaptation from the French; wrote the plays "In the Fashion," brought out at the Madison Square Theatre at an author's matinee, May 19, 1887, and "Reading a Tragedy," played at the Star Theatre; and when she became too weak to appear on the stage, wrote newspaper articles, books, and plays as long as she was able to hold her pen. In 1888 she published "Mes Amours," a small volume of verse, and completed the manuscript of "Bella Demonica," a novel, and a week before her death finished a second novel.

Donaldson, Edward, naval officer, born in Baltimore, Md., Nov. 7, 1816; died there, May 15, 1889. He was appointed a midshipman in the United States Navy, July 21, 1835; was promoted passed midshipman, June 22, 1841; lieutenant, Oct. 23, 1847; commander, July 16, 1862; captain, July 25, 1866; commodore, Sept. 28, 1871; rear admiral, Sept. 21, 1876; and was retired, Sept. 29, 1876. During his service in the navy he had been on sea duty eighteen years and one month; shore or other duty, thirteen years and three months; and was unemployed twenty-two years and ten months. While attached to the United States frigate "Columbia," of the East India squadron, he took part in the attacks on the forts on the coast of Sumatra in 1839. He served in McLaughlin's "mosquito" fleet in Florida in 1841-'42; on coast-survey duty in 1846; on the United States sloop "Plymouth," of the East India squadron, in 1847-'48; on the steamer "Water Witch," in La Plata river, in 1853-'54; on special service, with the steam frigate "Merrimac," in 1856-'57; commanded the steam gunboat "Seioto," of the Western Gulf squadron, in 1861-'62; was engaged in the passage of Forts Jackson and St. Philip and the Vicksburg batteries, and the capture of New Orleans; commanded the steamer "Keystone State," of the North Atlantic squadron, on the trip to the West Indies in search of the Confederate privateer "Sumter" in 1863; and commanded the "Seminole," at the battle of Mobile Bay, in August, 1864.

Du Pont, Henry, manufacturer, born near Wilmington, Del., Aug. 8, 1812; died there, Aug. 8, 1889. He was the second son of Eleuthere Irenee du Pont de Nemours of France, who sought refuge in the United States from Jacobin persecution in 1800, and founded the Du Pont Powder Works, on Brandywine river, in Delaware. He was graduated at the United States Military Academy in 1833 and assigned to duty at Fort Monroe as brevet second lieutenant in the Fourth United States Artillery; was on frontier service on the Creek Indian reservation in Alabama; and at his father's request resigned his commission on July 15, 1834, to assist in the manufacture of powder. His father died a few months afterward, and the brothers Henry and Victor Albert conducted the business till 1850, when the latter retired and the former assumed the chief direction, which he retained until his death.

During the War of 1812 with England, the Du Pont works were the sole source of supply of powder for the American army, and had a daily capacity of about 2,000 pounds. The works have been enlarged since so that they can now produce 40,000 pounds a day. The firm supplied large quantities of powder to the American army in the Mexican War, and to the allied armies in the Crimean; and besides manufacturing day and night for the national army in the civil war, one of the firm was sent to Europe by the Federal authorities to make additional war purchases. Since the civil war the firm have shipped large quantities of powder to various European nations. In 1841 Gen. Du Pont was aide-de-camp on the staff of Gov. Cooper; from 1845 till 1861 he was adjutant general of the State; and from 1861 till Aug. 20, 1866, major-general of the State militia. He accepted the latter office only on condition that he should have absolute command of all the armed troops in the State, and his first official act was to muster every organized company into the United States service and deprive every man of his arms who refused to take the oath of allegiance. His patriotic action created intense excitement throughout the State, and induced the Governor to suspend his orders; but the Federal authorities came to his support, and whatever active aid to the Confederacy was in contemplation was checked by his promptness and the arrest of several suspected leaders. He was a lifelong friend of Henry Clay, voted for Bell and Everett in 1860, was a staunch Republican from the day of Lincoln's election, served as presidential elector in 1868, 1876, 1880, 1884, and 1888, and was several times a member of the Board of Visitors to the United States Military Academy.

Edwards, John N., journalist, born in Virginia in 1840; died in Jefferson City, Mo., May 4, 1889. He learned the printer's trade when a boy, removed to Lexington, Mo., found employment in the composing room of the "Commercial" newspaper in 1857, and later became editor of the Lexington "Examiner." At the outbreak of the civil war he entered the Confederate army, where he rose to the rank of major. After the war he went to Mexico city, remained there several years, and during the time published "The Mexican Times" and a history of Gen. Shelby and his campaigns. Returning, he settled first in St. Louis, where he was an editorial writer on the "Missouri Republican," and then removed to Kansas City and became editorial writer on the "Times." He also published "Shelby's Expedition into Mexico" and "Quantrell and his Men."

Ehninger, John Whitten, artist, born in New York city, July 22, 1827; died in Saratoga Springs, N. Y., Jan. 22, 1889. He was graduated at Columbia College in 1847, went abroad immediately and entered the studio of Thomas Couture in Paris, and finished his first oil painting, "Peter Stuyvesant," in 1850. He revisited New York in 1850 to superintend the engraving of this painting for the American Art Union, spent 1851-'52 in study at Dusseldorf and other European art centers and repositories, was elected a full member of the National Academy of Design in 1860, and made his permanent residence in Saratoga Springs about 1874. He did a great deal of work in book illustration, both drawing and engraving, was an accomplished etcher, and produced portrait busts in plaster. His paintings include "New England Farmyard," "Yankee Peddler," "Love me, love my Horse," "The Foray," "The Sword," "Lady Jane Grey," "Christ healing the Sick," "Death and the Gambler," and the contributions to the exhibitions of the National Academy—"Autumnal Landscape" (1867); "A Monk" (1871); "Vintage in the Valtella, Italy" (1877); and "Twilight from the Bridge of Pau" (1878). He was one of the promoters of the Cooper Union Art School.

Ellis, E. John, lawyer, born in Covington, La., Oct. 15, 1841; died in Washington, D. C., April 25, 1889. He took a partial course at Centenary College, Jackson, La., and was graduated in law at the University of Louisiana in 1861. Entering the Confederate army

as a private five days afterward, he served till the close of the war and reached the rank of captain. In 1866 he was admitted to the bar in his native State, and from 1867 till 1874 practiced in New Orleans. In the latter year he was elected to Congress from the Second Louisiana District as a Democrat, and served by re-elections till March 4, 1885, when he engaged in law practice in Washington.

Field, Moses W., merchant, born in Watertown, N. Y., Feb. 10, 1828; died in Detroit, Mich., March 14, 1889. He was brought up on a farm, and received a common-school education, removed with his parents to Cato, Mich., while a youth, and to Detroit in 1844, and entered a wholesale grocery firm of which he afterward became the head. He was elected to Congress in 1872 from the First Michigan District (city of Detroit) as a Republican. While in Congress he served as a member of the Committee on Education and Labor, and made speeches on the tariff and currency questions. He was renominated but was defeated and soon afterward joined the Greenback party. He called the National Greenback Convention at Indianapolis that nominated Peter Cooper for President in 1876, and made a personal canvass of Michigan in the interest of the party. Through his efforts and speeches the Greenback vote of his State increased from 500 in 1874 to 75,000 in 1878. In 1884 he was elected a regent of the University of Michigan. In 1888 he returned to the Republican party.

Fitzhugh, William Edward, naval officer, born in Ohio, Oct. 18, 1832; died in Philadelphia, Pa., Aug. 3, 1889. He was graduated at the United States Naval Academy and promoted passed midshipman June 15, 1854; was promoted master, Sept. 16, 1855; lieutenant, Dec. 15, 1855; lieutenant-commander, July 16, 1862; commander, July 25, 1866; captain, Nov. 25, 1876; commodore, Aug. 25, 1887; and at the time of his death was in command of the naval station at Philadelphia. He served in the Mediterranean in 1849-'51; on the coast of Africa, in 1858-'60; commanded the steam sloop "Iroquois" of the North Atlantic blockading squadron in 1862-'63; took part in the engagement with Fort Morgan in August, 1864; and while commanding the steamer "Ouachita" of the Mississippi squadron in 1864-'65 received the surrender of the Confederate naval forces on Red river. During his service in the navy he was on sea duty eighteen years and five months, on shore or other duty fourteen years and ten months, and was unemployed six years and ten months.

Flint, Charles Louis, agriculturist, born in Middleton, Mass., May 8, 1824; died in Hillman, Ga., Feb. 26, 1889. He was graduated at Harvard College in 1849; studied law and was admitted to the bar in New York city; and was chosen secretary of the newly organized Massachusetts Board of Agriculture. Feb. 14, 1853. He applied himself with enthusiasm to this work; planned and carried out the series of reports of the board, giving them permanent value; made a tour of the rural districts of Great Britain in 1862; was a commissioner to the International Exhibition at Hamburg and visited agricultural schools in Europe in 1863; made a detailed report on the schools, of which the promoters of the agricultural schools established in the United States by Congress largely availed themselves; and held the office of secretary of the Agricultural Board till 1878. He was a founder of the Institute of Technology in Boston and of the Massachusetts Agricultural College in Amherst; was secretary of the Agricultural College for twenty years, and also served it as lecturer and president. Mr. Flint edited Harris's "Insects injurious to Vegetation"; compiled with George B. Emerson a "Manual of Agriculture"; and published "Agriculture of Massachusetts" (3 vols., Boston, 1853-'54); "Grass and Forage Plants" (New York, 1857); and "Milk Cows and Dairy Farming" (Boston, 1859).

Flood, James Clair, capitalist, born on Staten Island, N. Y., Oct. 25, 1826; died in Heidelberg, Germany, Feb. 21, 1889. He received a limited education in the public schools of New York city, learned a mechani-

cal trade, and was among the first of the pioneers who went to California in 1849. On reaching San Francisco he was employed for about a year as a carpenter, then went to the Yerba diggings and engaged in mining, and after accumulating \$3,000 returned to New York; removed his parents to Illinois, bought them a farm, and then went to California again. In San Francisco he met William O'Brien, who had accompanied him on his first trip, and in 1856 they formed a partnership and opened a liquor saloon on Washington Street. The saloon became a recognized exchange among the miners, and the partners soon added to their business that of buying claims, finding purchasers for needy and discouraged miners, loaning money, speculating in stocks, and joining fortunate claim owners in developing their property. The success of these ventures led them to establish a regular brokerage office. In 1862 the partners invested heavily in the Kentuck, Crown Point, Hale and Norcross, Beleber, and other mines in the celebrated Comstock lode, and made a large sum of money. Soon after this investment they became acquainted with James G. Fair, then superintendent of the Hale and Norcross and Ophir mines, with John W. Mackey, a successful miner, and the four uniting in partnership formed the famous Bonanza firm. Fair and Mackey, being personally familiar with the entire Comstock lode, proposed that the firm should buy all the mines and claims on it. Accordingly, a large number of small properties were purchased for the reported sum of \$75,000, combined into two—the Consolidated Virginia and the California—and stock to the amount of \$5,000,000 was placed on the market. In 1871 the firm began to push the development of their mining property with vigor, and in 1875 made the announcement of the wonderful discovery of silver that astonished the world. Their stock rose to fabulous figures and started a craze for speculation. In six years the two mines yielded in gold and silver \$172,275,270, and from 1875 till 1879 paid \$75,000,000 in dividends. The partners were reported to have cleared \$20,000,000 each by the transaction, and when the production fell off the stock shares dropped from \$300 to \$800 each to \$8. The partners then established the Nevada Bank in San Francisco as a rival, it was believed, to the Bank of California, of which William C. Ralston was president, and Mr. Flood became the first president. On Aug. 26, 1875, in consequence of a call for several million dollars made by the Nevada Bank upon the Bank of California, the latter was forced to suspend. This failure led to the suspension of the Gold and Merchants' banks, and the suicide of Mr. Ralston on the following day. In October, 1887, the Nevada Bank was caught in the great California wheat combination disruption to the extent of \$10,000,000. Mr. Flood resigned the presidency, and Mr. Fair, who had previously retired from the bank, loaned the money to help it out of its difficulty, and became its president. Mr. Flood lost several millions in this wheat failure. He was liberal with his wealth, and previous to the great wheat "deal" built a residence on the summit of Nob Hill in San Francisco of Connecticut brown stone, a large square structure, looking like a public institution, on which and the decorations he expended nearly \$1,500,000. He also laid out a grand estate in the suburban town of San Mateo.

Foster, Henry A., lawyer, born in Hartford, Conn., May 7, 1800; died in Rome, N. Y., May 12, 1889. He removed to Cazenovia, N. Y., when a boy, received a common-school education, studied law, and was admitted to the bar in 1822. From 1831 till 1834, and from 1841 till 1844, he was a member of the State Senate; from 1837 till 1839, a Representative in Congress; and in 1844-'45 United States Senator. In 1848 he was a delegate to the Democratic Convention that nominated Lewis Cass for President. He was elected judge of the New York Supreme Court in 1863. Judge Foster was senior member and President of the Board of Trustees of Hamilton College, Vice-President of the American Colonization Society, and

sole survivor of the "Albany Regency" that for many years exerted a powerful influence in politics.

Freligh, Martin, physician, born in Dutchess County, N. Y., Jan. 31, 1813; died in Kingston, N. Y., Aug. 31, 1889. He was graduated at the College of Physicians and Surgeons in New York city in 1834; practiced in Saugerties, N. Y., till 1842, then removed to Rhinebeck, and in 1851 settled in New York city. He became Professor of the Institutes of Medicine in the College of Physicians and Surgeons; surgeon to the New York Police Department; surgeon to the Hudson River Railroad Company; and chief medical officer to the Globe Mutual Life Insurance Company. He published "A Monograph on the Toxicological Properties of Lead and its Various Compounds," "A Treatise on Epilepsy," "Review of Armstrong's Third Division on Scarlatina Maligna," "The Pathology and Cure of Consumption," and "Freligh's Homeopathic Practice."

Frieze, Henry S., educator, born in Boston, Mass., Sept. 15, 1817; died in Detroit, Mich., Dec. 7, 1889. He was graduated at Brown University in 1841; remained there as tutor till 1854, and then became Professor of Latin in the University of Michigan, with which he was connected till his death. He was acting president for some time after the resignation of President Haven in 1869, and in the two following years was instrumental in having all departments of the university opened to women, in securing the establishment of the diploma system, in obtaining a valuable library of political science, and in having the Legislature give its first aid to the institution, an appropriation of \$75,000. He was again acting president during President James B. Angell's absence as United States Minister to China in 1880-'81. Dr. Frieze collected in Europe the engravings and casts that form the nucleus of the present university museum of art. At the time of his death he was dean of the literary faculty.

Fritschel, Gottfried Leonhard Wilhelm, clergyman, born at Nuremberg, Bavaria, Germany, on Dec. 19, 1836; died at Mendota, Ill., July 13, 1889. He was graduated at the University of Erlangen in 1856, came to this country in 1857, and was Professor of Theology in the theological seminary of the German Lutheran Iowa Synod, at Dubuque. He was one of the ablest theologians of the country, and his missionary zeal and activity were no less striking than his scholarship. His articles in the periodicals of his synod were numerous. Among his publications are "Meditations on the Passion of Christ" (Nuremberg, 1868; 2d edition, 1879); "History of Protestant Missionary Operations among the North American Indians in the 17th and 18th Centuries" (1870); "The Teachings of Missouri Synod on the Doctrine of Predestination" (1883); besides articles in "Kirchliche Zeitschrift," of which he was co-editor with his brother from 1876.

Gammell, William, educator, born in Medfield, Mass., Feb. 10, 1812; died in Providence, R. I., April 3, 1889. He was graduated at Brown University in 1831, was tutor there till 1835, was Professor of Rhetoric and English Literature there from 1835 till 1851, then was transferred to the new department of History and Political Economy, which he held till his resignation in 1864. He was assistant editor of the "Christian Review" in 1850-'53, a frequent contributor to the press, and President of the Rhode Island Historical Society from July 11, 1882, till his death. He published a life of Roger Williams (Boston, 1846), contributed a life of Samuel Ward to Sparks's "American Biographies," and prepared a history of American Baptist missions.

Gardiner, Frederic, clergyman, born in Gardiner, Me., Sept. 11, 1822; died in Middletown, Conn., July 17, 1889. He was graduated at Bowdoin College in 1842, and at the General Theological Seminary in 1845; became rector of Trinity Church, Saco, Me., in 1845; was assistant in Philadelphia to the present Bishop Mark A. De W. Howe in 1847-'48; rector of Grace Church, Bath, in 1848-'53; and of Trinity Church, Lewiston, Me., in 1855-'56; assisted Bishop Burgess in the Diocesan Theological School; and in 1865 be-

came Professor of the Literature and Interpretation of Scripture in Gambier Theological Seminary, Ohio. He resigned this office in 1867; was chosen assistant rector of Trinity Church, Middletown, Conn., the same year; became Professor of the Old Testament and Literature in Berkeley Divinity School, 1868, holding the office till 1883; and from that time till his death was Professor of New Testament Interpretation and Literature in the same institution. In 1880 he founded the Society of Biblical Literature and Exegesis. He published "The Island of Life, an Allegory" (Boston, 1851); "Commentary on the Epistle of St. Jude" (1856); "Harmony of the Gospels in Greek" (Andover, 1871; 7th ed., 1884); "Harmony of the Gospels in English" (1871); "Diatessaron; the Life of our Lord in the words of the Gospels" (1871); "The Principles of Textual Criticism" (1876); and "The Old and New Testaments in their Mutual Relations" (1885). He had just completed another work.

Garrison, George Tankard, lawyer, born in Accomac County, Va., Jan. 14, 1835; died there, Nov. 13, 1889. He was graduated at Dickinson College in 1853, and at the Law School of the University of Virginia in 1857, and practiced till the beginning of the civil war. He entered the Confederate army as a private, but was soon mustered out on being elected a member of the Legislature, where he served till the close of the war. From 1865 till 1870 he was engaged in law practice and agriculture. In 1870 he was elected by the Virginia Legislature judge of the Eighth Circuit, was subsequently elected judge of the Seventeenth Circuit, and while holding the latter office in 1880 was elected to Congress as a Democrat from the First Virginia District, and in 1882 was re-elected.

Gay, Edward J., planter, born in Liberty, Bedford County, Va., Feb. 3, 1816; died in Iberville Parish, La., May 30, 1889. He removed with his parents to Illinois in 1820, and thence to St. Louis, Mo., in 1824, was educated at Augusta College, Kentucky, and engaged in commercial business. He removed to Louisiana in 1855. From 1838 till 1860 he was largely interested in the commercial life of St. Louis. After removing to Louisiana he became a large investor in commercial, agricultural, and manufacturing enterprises, and at the time of his death was accounted the wealthiest man in the Southwest. He was the first President of the Louisiana Sugar Exchange in New Orleans. In 1834 he was elected to Congress as a Democrat, and was re-elected in 1836 and 1838. He served on the committees on the District of Columbia and on Appropriations.

Gilbert, John Gibbs, actor, born in Boston, Mass., Feb. 27, 1810; died there, June 17, 1889. He was educated at the Boston High School, and entered the dry-goods store of his uncle John Gibbs. At school



he was noted for his elocutionary powers, and when a clerk he became an amateur actor. His first public appearance was on Nov. 28, 1828, at the Tremont Theatre, where, billed as "young gentleman," he played Jaffier in "Venice preserved." The presence of his uncle and other relatives among the audience, who had opposed his fondness for

acting, determined his career, and he devoted himself exclusively to the stage. He played Sir Edward Mortimer in "The Iron Chest," and Shylock in "The Merchant of Venice." At first his success was such that he received a fair remuneration, but soon he was reduced to a salary of \$3 a week. Becoming discontented with his prospects he secured in the autumn of 1828 an engagement with James H. Caldwell, manager of the Camp Street Theatre, New Orleans.

Here he made his first appearance as Sir Frederick Vernon in "Rob Roy," and failed on account of stage fright. Soon afterward he acted as an old man in "The May Queen," and discovered his great capacity for old men's parts. For five years he continued in the South, playing in the larger towns. In 1834 he returned to Boston and was engaged at the Tremont Theatre. He first acted Old Dornton in "The Road to Ruin," but gradually was more and more cast for old men. During this engagement he was associated with Junius Brutus Booth, Edwin Forrest, James W. Wallack, Charlotte Cushman, Mrs. Charles Kean, and other famous actors. For a part of this period he was also stage manager. In 1839 he came to New York, and on June 13 appeared with Thomas Hamblin at the Bowery Theatre, taking the part of Sir Edward Mortimer. He returned to Boston a year later, and played at the Tremont until that building was sold. For two years he appeared at the National Theatre, and then became manager of the Federal Street Theatre. In 1845 he went to England, where he was invited to appear at the Princess Theatre with William C. Macready and Charlotte Cushman, playing first Sir Robert Bramble in "The Poor Gentleman." His success was immediate, and he was engaged for a season to represent the parts of old men in standard comedies. Meanwhile he studied the acting at the Haymarket Theatre, and visited Paris in order to observe the comedy acting at the Theatre Français. He returned to this country in 1848 to play at the Park Theatre, New York, under the management of Thomas Hamblin. He opened as Sir Anthony Absolute in "The Rivals," and played Admiral Kingston in "Naval Engagements," reciting the tag on the evening when this building was burned, after which he continued at the Bowery Theatre. His next engagement was at the Howard Athenaeum in Boston; but in 1851 he went to Philadelphia, where he appeared at the Chestnut Street Theatre as Master Walter in "The Hunchback." He played the original Uncle Tom there, and there also first acted Macbeth and Falstaff—parts that probably he never played elsewhere. In September, 1854, he relinquished his engagement in Philadelphia to open the Boston Theatre, where he spoke the opening address, written by Dr. Thomas W. Parsons. He remained in Boston until 1857, when he played Dominic Sampson in "Guy Mannering," in support of Charlotte Cushman at Niblo's Garden, New York city. After a brief season at the Arch Street Theatre in Philadelphia, he joined the Wallack-Davenport combination, with which he returned to New York. In 1862 he became a member of John W. Wallack's company, and began that connection on Sept. 22 as Sir Peter Teazle in the "School for Scandal." Thereafter he continued with the Wallack company until its final disbandment on May 5, 1868. On that occasion the "School for Scandal" was again presented, and during the play Mr. Gilbert, in response to the demands of the audience, in his courtly manner, spoke briefly of his career and feelingly of the courtesy that the public had ever shown him. He referred with tenderness to the illness of Mr. Wallack, and with some asperity to the contemporary stage. A few weeks later he played Polonius in the great performance of "Hamlet" for the benefit of Mr. Wallack. In the following autumn he acted Sir Anthony Absolute in "The Rivals," at the Fifth Avenue Theatre, and made his last performance in New York on Nov. 10, 1868. Subsequently he appeared elsewhere, closing in Boston. His repertory included one hundred and twenty characters, but his portrayal of the courtly old gentlemen in old English comedies was the most effective of his impersonations. Among his most popular parts were Sir Peter Teazle, Sir Anthony Absolute, Lord Ogleby, Job Thornberry, and Old Dornton. With his death has passed away the last representative of the old school of which he was so characteristic a delineator. The fiftieth anniversary of the beginning of his stage life was commemorated by a benefit at Wallack's Theatre and a public ban-

quet at the Lotos Club in New York city. He married Miss Campbell in 1836, who played with him, and on her death married Miss Sarah H. Gavett, who survives him. Paintings by John W. Alexander and J. Alden Weir of him are at the Player's Club in New York city as well as a striking life bust of him as Sir Peter Teazle made by J. S. Hartley.

Gowen, Franklin Benjamin, financier, born in Philadelphia, Pa., Feb. 9, 1836; died in Washington, D. C., Dec. 14-15, 1889. He was educated in Emmetsburg, Md., and in a Moravian school in Lititz, Pa., engaged in coal mining in 1858, and was admitted to the bar in 1860. In 1862 he was elected district attorney of Schuylkill County, and after serving two years resumed practice and was appointed general counsel in the mining region of the Philadelphia and Reading Railroad and of the Girard coal trust. In 1869 he was elected President of the Philadelphia and Reading Railroad, and held the office till 1881, and again in 1882. After his last retirement he resumed law practice. In 1872 he was a member of the State Constitutional Convention, and in 1876 became widely known by his successful prosecution of the "Mollie Maguire" murderers. Close business relations and warm personal friendship had existed between him and the late William H. Vanderbilt for many years, and during a call he was making on Mr. Vanderbilt in his New York residence on Dec. 8, 1885, the latter fell dead in his arms.

Grady, Henry Woodfin, journalist, born in Athens, Ga., in 1851; died in Atlanta, Ga., Dec. 23, 1889. He was educated in the universities of Georgia and Virginia, and began his career in journalism soon



after the civil war by making a tour of Georgia and describing the resources and possibilities of the State in a series of letters to the Atlanta "Constitution." These letters attracted the attention of the proprietor of the New York "Herald," who appointed him Georgia correspondent for that paper. In 1870 he established the "Daily Commercial" in Rome, Ga., but the venture was unsuccessful. Two years later he purchased an interest in the Atlanta "Herald," and though it had a stanch competitor in the "Constitution," he greatly enlarged its influence, and by means of Sunday editions and illustrated trade-issues did much to promote the development of the city and the State. On the failure of the "Herald," he established the Atlanta "Courier," but with insufficient capital and the rivalry of the "Constitution" he was soon forced to suspension. In 1880 an opportunity was offered him to purchase a quarter interest in the "Constitution" for \$20,000. He borrowed the money of Cyrus W. Field, bought the stock, and within two years repaid the loan with interest. While directing the policy of the paper, he contributed numerous articles to magazines on the condition and prospects of the South generally, and at the time of the Charleston earthquake he wrote vivid descriptions of the calamity. In 1886 he accepted an invitation of the New England Society to make a speech at the annual December dinner, and astonished even his friends by his oratory. Extracts from his speech on "The New South" were published in the newspapers from one end of the country to the other. A few days before his death he delivered an address before the Merchants' Association of Boston on "The Future of the Negro."

He was unwell when he left home, caught a fresh cold in Boston, received medical treatment in New York, and was attacked by pneumonia before he arrived home. A biography of him is in preparation by Joel Chandler Harris.

Graham, Charles Kinnaird, engineer, born in New York city, June 3, 1824; died in Lakewood, N. J., April 15, 1889. He entered the United States navy as a midshipman in 1841, served with the Gulf squadron during the Mexican War, resigned and began studying civil engineering in 1848, was appointed constructing engineer of the Brooklyn Navy Yard in 1857, and superintended the construction of the great dry dock and landing ways there. At the beginning of the civil war he volunteered with several hundred men who had worked under him in the navy yard, and was mustered into the New York Excelsior Brigade. Soon afterward he became colonel of the brigade, and in 1862 he was promoted brigadier-general for services with the Army of the Potomac. He was twice wounded in the Battle of Gettysburg and taken prisoner. After his release he commanded the gunboats on Gen. Butler's expedition up James river. On March 13, 1865, he was brevetted major-general of volunteers. Gen. Graham was chief engineer of the New York Dock Department from 1873 till 1875, surveyor of the port of New York from 1878 till 1883, and naval officer from 1883 till 1885.

Gray, Albert Zabriskie, clergyman, born in New York city, March 2, 1840; died in Chicago, Ill., Feb. 16, 1889. He was graduated at the University of the City of New York in 1860. The winter of 1860-'61 he passed in Geneva, Switzerland, studying theology under Merle d'Aubigny and, entering the General Theological Seminary in New York city in the following autumn, was graduated in 1864. In the same year he was ordained deacon and priest in the Protestant Episcopal Church by Bishop Horatio Potter, and, becoming chaplain of the Fourth Massachusetts Cavalry, served for some months in that capacity until he was taken prisoner and confined in Libby Prison at Richmond. After his liberation at the close of the war he became rector of a parish at Bloomfield, N. J., remaining there until 1867. He married in 1866 Miss Harriet Guion, of Kinderhook, N. Y. The years from 1867 to 1870 were spent in European travel. Returning home in the latter year, he took charge of the parish of St. Philip in the Highlands, Garrison's, N. Y., and was its rector from 1870 till 1882. In the last-named year he was appointed warden of Racine College, at Racine, Wis., and he held that office until his resignation in 1888. He then removed to Chicago, where he died suddenly from pneumonia. Besides publishing occasional sermons, addresses, and verses, he was author of "The Law and the Life; Sketches and Studies in Palestine" (New York, 1876); "Mexico as it is; being Notes of a Recent Tour in that Country, with Information for Travelers in that Direction, as also some Study of the Church Question" (1878); "Jesus only, and other Sacred Songs" (1882); "Racine and her Labor of Love" (1887).

Gray, George Zabriskie, clergyman, brother of the preceding, born in New York city, July 14, 1838; died at Sharon Springs, N. Y., Aug. 4, 1889. After leaving the university he studied at the Theological Seminary in Alexandria from 1859 to 1861, and after the outbreak of the civil war continued his theological studies at the Episcopal theological school in Philadelphia, being graduated there in 1862. He was ordained deacon by Bishop Horatio Potter at the close of his studies, and married Miss Kate Forrest, of New York city, in the same year. He was for a short time minister in charge of parishes at Warwick, N. Y., and Vernon, N. J., but before the end of 1862 became rector of a parish at Kinderhook, where he remained until 1865, going from there to Bergen Point, N. J. He was rector of a parish in that place for eleven years, resigning his charge in 1876 to assume the duties of dean of the Episcopal Theological School at Cambridge, Mass. In the same year he received the degree of D. D. from the University of the City of

New York. At Cambridge the remaining years of his life were spent, and from him the Theological School received in great measure the impress of the broad and liberal-minded churchmanship that characterizes it. For several years he was looked upon as one of the leaders in the American Episcopal Church which in his death lost one of her most loyal adherents. In disposition Dean Gray was very genial and generous, and in quiet, unostentatious ways helped on in life many a young man who needed intelligent assistance. He was very generally beloved by those with whom he came in contact in the discharge of his many and varied duties, and the circle of his acquaintance was large and ever increasing. For more than a year before his death he had been a sufferer from Bright's disease, and the winter preceding was spent in Bermuda in search of health. His wife, a married daughter, and two sons survive him. Besides occasional sermons, addresses, and poems, he published "The Children's Crusade; an Episode of the Thirteenth Century" (New York, 1871); "The Scriptural Doctrine of Recognition in the World to come" (1875); "Husband and Wife; or the Theory of Marriage and its Consequences" (Boston, 1885).

Green, Thomas C., jurist, born in Culpeper, Va., in 1820; died in Charleston, W. Va., Dec. 4, 1889. He was graduated at the Law School of the University of Virginia, and removed to Charlestown to practice. He was appointed judge of the Supreme Court to fill a vacancy in 1875, was elected to fill the remainder of the term in 1876, and was elected for the long term of fourteen years in 1880. He was the senior judge.

Gross, Samuel Weissel, physician, born in Cincinnati, Ohio, Feb. 4, 1837; died in Philadelphia, Pa., April 16, 1889. He was a son of Prof. Samuel D. Gross, the eminent surgeon, was educated at Shelby College, Kentucky, studied medicine and surgery at the University of Louisville and at Jefferson Medical College, and settled in Philadelphia to practice. At the beginning of the civil war he was commissioned a surgeon and major of volunteers, and he served on the field and in hospitals till the close of the war. Subsequently he became one of the surgeons to the Philadelphia Hospital, the Howard Hospital, and the Jefferson College Hospital, where he was also Professor of Chemical and of Genito-urinary Surgery. He was President of the Philadelphia Pathological Society, of the Alumni Association of Jefferson Medical College, and of the Association of American Medical Colleges. He aided his father in compiling his "System of Surgery," and was author of technical publications.

Gunning, Thomas Brian, dentist, born in London, England, in 1814; died in New Brighton, Staten Island, N. Y., Jan. 8, 1889. He came to New York city and began studying dentistry in 1840, and early in his practice applied himself to the invention of dental and surgical apparatus. In 1861 he introduced into his practice the hard-rubber interdental splints for the treatment of fractured jaws. The use of this invention proved so beneficial in general surgery that in April, 1865, the surgeons in attendance on William H. Seward, United States Secretary of State, sent for him to treat the double fracture in Mr. Seward's jaw caused by a carriage accident and the attempt on his life by the Lincoln conspirators. Through Dr. Gunning's skillful treatment, Mr. Seward was enabled to attend a Cabinet meeting the day following the application of the splints. In 1867 he was appointed a member of a commission to select the medical and surgical instruments to be displayed in the United States section of the Paris exhibition, and in 1876 he made an interesting exhibit of his inventions at the Centennial Exhibition. He was author of "Physiological Action of the Muscles concerned in the Movement of the Lower Jaw" (1867); "The Larynx, the Source of Vocal Sounds" (1874); and "Hard-Rubber Appliances for Congenital Cleft Palate" (1878).

Hall, James, physician, born in Cornish, N. H., April 9, 1802; died in Claremont, Md., Aug. 31, 1889. He was graduated in medicine at Bowdoin College in 1822, and for his health sailed from Baltimore for Li-

beria, West Africa, in 1831. In the following year the Legislature of Maryland appropriated \$200,000 for African colonization, and in the autumn sent one hundred and thirty-two emigrants to Liberia. In 1833 Dr. Hall returned to Baltimore, having in the mean time made a thorough exploration of Liberia. On his favorable report the colonization scheme attained larger proportions. He was successful in planting a large colony and ruling it on strict temperance principles, persuaded the king to establish courts of law, accomplished the abolition of the ancient custom of forcing people accused of witchcraft to drink poison, and in many ways exerted a beneficial influence over the king. After his final return to the United States, the African state of Maryland became merged in the Republic of Liberia, but retained its American name as Maryland County.

Hamilton, Alexander, lawyer, born in New York city, about 1814; died in Nevis, Irvington, N. Y., Dec. 30, 1889. He was a grandson of Alexander Hamilton, Secretary of the United States Treasury, and son of James Alexander Hamilton, and was educated at the United States Military Academy, but did not enter the army. Soon after his admission to the bar he founded the law firm of Hamilton and Lyon, which ranked high among the noted firms of New York for more than twenty-five years. Excepting a service as secretary of the United States legation at Madrid in 1848-'50, he never held a public office, though tendered several under the State and national governments. In 1870 he retired from practice to his grandfather's homestead, and passed the remainder of his life in collecting articles of historical interest. He was President of the Knickerbocker Club from its organization in 1871 till his death, a founder of the Union League Club, and treasurer of the Astor Library.

Hammill, Samuel McClintock, educator, born in Norristown, Pa., July 6, 1812; died in Trenton, N. J., Sept. 20, 1889. He was educated in Norristown Academy, and became principal of the Lawrenceville (N. J.), high school. He was instrumental in securing the establishment of the New Jersey State Normal School and the appointment of a State superintendent of education. In 1862 Rutgers College conferred the degree of D. D. upon him. He was one of the founders of the New Jersey Historical Society, and was its president for many years.

Hammond, John, manufacturer, born in Crown Point, N. Y., Aug. 27, 1827; died there, May 28, 1889. He was graduated at the Polytechnic Institute in Troy, N. Y., and was a California pioneer in 1849. He entered the national army as a private in 1861, was promoted to be a captain in the Fifth New York Cavalry, and during the war was advanced through all the grades to the rank of brigadier-general. After the war he was appointed an inspector of State prisons, serving from 1866 till 1869, and in 1878 and 1880 he was elected to Congress from the Eighteenth New York District as a Republican, serving there from March 19, 1879, till March 3, 1883, and being a member of the committees on Manufactures and on Pacific Railroads. Since 1855 he had been engaged in the manufacture of iron.

Hanks, John, farmer, born in Kentucky, in 1801; died near Decatur, Ill., July 1, 1889. He was a cousin of Nancy Hanks Lincoln, the President's mother, and from 1822 till 1860 was intimately associated with Mr. Lincoln in farming, trading, and other pursuits. The two men split rails together on Mr. Hanks's property eight miles west of Decatur in 1830, and in 1831 built near Springfield, Ill., the first flat-boat that ever made its way down the Sangamon, Illinois, and Mississippi rivers to New Orleans. Mr. Hanks exhibited some rails that Mr. Lincoln had split at the Chicago Convention that nominated him for the presidency, and introduced the rail-splitting feature in the ensuing canvass at a barbecue on his farm, where he fed 3,000 people. He contributed \$7,000 to the campaign expenses of his early associate.

Hardenbergh, Augustus A., banker, born in New Brunswick, N. J., May 18, 1830; died in Jersey City,

N. J., Oct. 5, 1889. He was educated at Rutgers College. In 1846 he entered a banker's office in New York city, in 1852 became teller of the Hudson County Bank, Jersey City, in 1858 cashier, and in 1878 president. He was elected to the Assembly in 1853, State Director of Railroads in 1868, President of the Northern Railroad of New Jersey in 1874, and to Congress as a Democrat in 1874, 1876, and 1880.

Harding, William White, publisher, born in Philadelphia, Pa., Nov. 1, 1830; died there, May 15, 1889. He was a son of Jasper Harding, the publisher and first editor of the Philadelphia "Inquirer," and in 1855 became associated with his father in the "Inquirer" and in the manufacture and sale of a popular edition of the Bible. In 1859 he succeeded to the sole proprietorship of the joint publication business, and while taking an active part in its management began to interest himself in local and other business affairs. He rendered the Government valuable services during the civil war, carried on the business of manufacturing paper from 1863 till 1878, and was an energetic promoter of the Philadelphia city passenger railroad system. Two months before his death he retired from the management of his publication business.

Harkey, Simeon Walcher, clergyman, born in Iredell County, N. C., Dec. 3, 1811; died at Knoxville, Ill., March 1, 1889. He made his way on foot, with other students from the South, to Gettysburg, where he was graduated in 1834. After his ordination he became pastor of the Woodsborough parish in Maryland, whence he was called to Frederick. In 1850, he removed to Illinois, where he became professor in the Hillsborough Institute (in 1852 removed to Springfield and incorporated as Illinois State University), with the theological department of which he was connected until its suspension in 1867. In the same year he took charge of the English Mission in St. Louis, Mo., but in October, 1869, he was compelled to resign on account of failing health. After resting a few years, he was successively pastor at Washington and Knoxville, Ill. At the latter place, where he spent the last years of his active life, he was successful in reclaiming Ansgari College, which had been diverted from its lawful ecclesiastical ownership, and re-opening it as Knoxville Institute. In 1857 he was elected President of the General Synod. He was in the active service of the Church fifty-five years. His publications in book form are: "Lutheran Sunday-School Question-Book" (1838); "The Church's Best State" (1843); "Daily-Prayer Book" (1844); "Value of an Evangelical Ministry" (1853); and "Justification by Faith" (1875).

Harney, William Selby, soldier, born near Haysborough, Davidson County, Tenn., Aug. 27, 1800; died in Orlando, Fla., May 9, 1889. He was appointed a second lieutenant in the First United States Infantry, Feb. 13, 1818; promoted first lieutenant, Jan. 7, 1819; transferred to the First Artillery, Nov. 16, 1821, and back to the First Infantry, Dec. 21, 1822; promoted captain, May 14, 1825; major and paymaster, May 1, 1833; lieutenant-colonel and transferred to the Second Dragoons, Aug. 15, 1835; colonel, June 30, 1846; brigadier-general, June 14, 1858; and was retired, Aug. 1, 1863. He was brevetted colonel, Dec. 7, 1840, for gallant and meritorious conduct in several engagements with Indians in Florida; brigadier-general, April 18, 1847, for services in the Battle of Cerro Gordo; and major-general, March 13, 1865, for long and faithful service. His active service comprised participation in the Black Hawk, Seminole, and Sioux Indian wars and the seizure of San Juan island during the Oregon boundary dispute with Great Britain, for which he was recalled from the command of the department of Oregon. At the time of his death he was the oldest officer in the United States army.

Hartranft, John Frederick, soldier, born in New Hanover, Montgomery County, Pa., Dec. 16, 1830; died in Norristown, Pa., Oct. 17, 1889. He was graduated at Union College in 1853, studied law and was admitted to the bar in 1859, became deputy-sheriff while a law student, and was chosen colonel of the Norris

City Rifles in 1859. When President Lincoln issued his first call for volunteers, Col. Hartranft tendered the services of his command, and was on duty at Washington for three months. He then accepted an appointment on the staff of Gen. William B. Franklin, with whom he served in the first Battle of Bull Run. In July, 1861, he was commissioned colonel of three-year volunteers, and in September organized the Fifty-first Regiment of Pennsylvania troops. He served with Gen. Burnside through his North Carolina campaign, participating in the Battle of Roanoke Island and the attack on Newbern, and afterward took part in the second Battle of Bull Run and the battles of Chantilly, Antietam, and Fredericksburg. After the latter battle he was ordered west, and was present at Vicksburg, Jackson, Campbell's Station, and Knoxville, commanding a division at Campbell's Station. On the re-enlistment of his regiment as veterans, he rejoined it in January, 1864, and soon afterward was assigned to the command of the first brigade, third division, Ninth Army Corps, with which he took part in the battles of the Wilderness, Spottsylvania, North Anna, Cold Harbor, Weldon Railroad, Reams's Station, Poplar Spring Church, Hatcher's Run, Fort Steadman, Petersburg, and Richmond. He was promoted brigadier-general May 12, 1864, for gallantry at Spottsylvania Court-House, and brevetted major-general, March 25, 1865, for meritorious services during the war. In October, 1865, he was elected Auditor-General of Pennsylvania, and in 1868 was re-elected. In 1872 and 1875, he was elected Governor, and at the close of his second term was appointed postmaster of Philadelphia. He held this office till July 15, 1880, when he was appointed collector of the port. He pursued a vigorous policy during the great railroad strikes in July, 1877, and in 1879 he was appointed major-general commanding the National Guard of Pennsylvania.

Hatch, Edward, soldier, born in Bangor, Me., Dec. 22, 1832; died in Fort Robinson, Neb., April 11, 1889. He was educated at the Norwich Military Academy, Vt., hastened to Washington as a volunteer private at the beginning of the civil war, was for some time on duty at the White House, assisted in raising the Second Iowa Cavalry, and was commissioned a captain in it on Aug. 12, 1861. His promotions were rapid and brilliantly earned. He became major, Sept. 5; lieutenant-colonel, Dec. 11; colonel, June 13, 1862; brigadier-general, April 27, 1864; brevet major-general of volunteers for gallantry in the battles before Nashville, Dec. 15, 1864; and was mustered out of the volunteer service on Jan. 15, 1866. On July 28, 1866, he was appointed colonel of the Ninth United States Cavalry, and on March 2, 1867, was brevetted brigadier-general, United States army, for gallantry at the battle of Franklin, Tenn., and major-general, United States army, for services in the battle of Nashville. In 1876 he succeeded Gen. Gordon Granger in command of the military department of Arizona, which included New Mexico, and his duties there were both onerous and delicate by reason of the Indian troubles. He was appointed a member, and was chosen President of the Ute Investigating Commission in the autumn of 1880, and after arranging a treaty with that tribe returned to New Mexico and took the field against Victorio, the Apache chief. During his entire military career he was noted as a uniformly successful cavalry officer and Indian fighter.

Hayes, Lucy Webb, mistress of the White House, born in Chillicothe, Ohio, Aug. 28, 1831; died in Fremont, Ohio, June 25, 1889. She was a granddaughter of Judge Isaac Cook, of Connecticut, and daughter of James Webb, M. D., and Maria Cook. She was graduated at Wesleyan Female Seminary in 1852, and married Rutherford B. Hayes in 1853. At the beginning of the civil war her husband and two brothers entered the national army, and from that time till the close of the war she made her home a refuge for wounded, sick, and furloughed soldiers. She spent two winters in camp with her husband in Virginia, and joined him at Middletown, Md., after

he had been wounded in the Battle of South Mountain. Some time afterward she ministered to the sick and wounded in the hospital at Frederick City. During her husband's term as a member of Congress she



remained in Washington, and after he became Governor of Ohio she was active in promoting State charities. She was an organizer of the Ohio Soldiers' and Sailors' Orphans' Home, and one of its directors till it was made a State institution. Throughout Mr. Hayes's term as President she presided over the White House. She was noted for her strong religious fervor and her uncompromising temperance principles.

On retiring from the White House in 1881, she became deeply interested in the Women's Relief Corps, and served several years as President of the Woman's Home Missionary Society of the Methodist Episcopal Church. She was an honorary member of the Society of the Army of West Virginia.

Hazen, J. H., naval hero, born in North Hero, Vt., in 1799; died in Marshall, Ill., Aug. 31, 1889. Early in 1813 he removed to Ohio, became associated with Commodore Perry's company of ship builders, and joined the force on the flagship "Lawrence" for the impending fight. After the flagship was disabled in action, he was one of the party that accompanied the commander in his perilous passage in an open boat from the "Lawrence" to the "Niagara," and in the subsequent action he received a bullet in his body that he carried throughout his life.

Hill, Daniel Harvey, soldier, born in York District, S. C., July 12, 1821; died in Charlotte, N. C., Sept. 25, 1889. He was graduated at the United States Military Academy in 1842, was commissioned brevet second lieutenant of artillery, and was assigned to duty at Fort Kent, Me. In the Mexican War he distinguished himself in the siege of Vera Cruz, the battles of Cerro Gordo and Contreras, and the capture of Mexico city. In 1849 he resigned his commission to accept the office of Professor of Mathematics and Military Tactics in Washington College, Virginia. Desiring a change of climate, he resigned in 1855; was Professor of Mathematics in Davidson College, North Carolina, from 1855 till 1859, and was then elected President of the North Carolina Military Institute at Charlotte, where he remained until the beginning of the civil war. He entered the Confederate army as colonel of the First North Carolina Regiment, and participated in the first battle of the war at Big Bethel. He was commissioned major-general, took part in the battles around Richmond, and suffered severely in the Battle of Malvern Hill. In September, 1862, during the Maryland campaign, he was ordered to guard the pass in the Blue Ridge, near Boonesboro', and there sustained an artillery attack for five hours, till Jackson had captured Harper's Ferry and Lee had crossed the Potomac. In July, 1863, he was promoted lieutenant general. He was transferred to the West to re-enforce Bragg, but was charged by that officer with disobedience of orders in the Battle of Chickamauga, and relieved of his command, which practically terminated his military career. After the war he became editor of a monthly magazine at Charlotte, N. C., "The Land we love"; wrote "The Sermon on the Mount" and "The Crucifixion," published by the Presbyterian Board of Publication; edited "The Southern Home" newspaper; and in 1877 was appointed President of the Arkansas Industrial University.

Hirsch, Samuel, rabbi, born near Triers, Germany, in 1815; died in Chicago, Ill., May 14, 1889. He was rabbi of a congregation in Dessau from 1833 till 1842,

when he resigned on account of his advanced liberal opinions; published "The Religious Philosophy of the Jews," and was appointed by the King of Holland grand rabbi of the Grand Duchy of Luxemburg, in 1843. During the ensuing three years he was conspicuous in the rabbinical conferences in Brunswick, Frankfurt, and Breslau. In 1866 he became rabbi of the reformed congregation Kaneseth Israel in Philadelphia, and in 1869 was president of the rabbinical conference in that city, in which the principles of reformed Judaism were formulated. He remained in Philadelphia till 1888, resigning the charge of his congregation in 1887, after a service of fifty years in the ministry, and then settled in Chicago. During his residence in Philadelphia he organized the Orphans' Guardian Society, founded the first branch in the United States of Israel Alliance, and was among the first advocates of the movement for observing Jewish services on the Christian Sabbath in localities where the necessity for such change appeared or was felt, a principle established by the National Rabbinical Convention of the Reformed Hebrew Church at Pittsburg, Pa., in November, 1885.

Hobart, John Henry, clergyman, born in New York city, in October, 1817; died in Fishkill, N. Y., Aug. 31, 1889. He was the youngest son of Bishop Hobart of the Protestant Episcopal Church, was graduated at Columbia College in 1836, was ordained a priest in the Protestant Episcopal Church in June, 1841, and was employed chiefly in mission work till 1848, when he was appointed assistant minister in Trinity Church, New York, where he remained till 1863. In 1872 he attended the Old Catholic Congress in Cologne, Germany, as chaplain to Bishop Whittingham, of Maryland. He was afterward chosen rector of Trinity Protestant Episcopal Church in Fishkill. He published "Instruction and Encouragement for Lent" (1859); "Mediævalism" and "Church Reform in Mexico" (1877); and edited his father's "Festivals and Fasts" (27th edition, 1862) and "The Clergyman's Companion" (1863).

Howard, Volney E., lawyer, born in Norridgewock, Me., about 1805; died in Santa Monica, Cal., May 14, 1889. He was admitted to the bar in his native State, and removed to Vicksburg, Miss., to practice in 1830. In 1837 he was appointed reporter to the Court of Errors and Appeals, and during his residence in Mississippi he fought duels with Sargeant S. Prentiss and Alexander G. Nutt, and was editor of a Democratic newspaper in Vicksburg, "The Mississippiian," for several years. He removed to Texas in 1847, and in 1848 and 1850 was elected to Congress as a Democrat. After his congressional service he was sent by the President on a mission to California. In 1856 he was in command of the militia in San Francisco when the attempt was made to suppress the vigilance committee. He was author of "Mississippi Law Reports, 1834-'44," and with A. Hutchinson compiled the "Statute Laws of Mississippi" (1840).

Hunt, Henry Jackson, soldier, born in Detroit, Mich., Sept. 14, 1819; died in Washington, D. C., Feb. 11, 1889. His grandfather and father were officers in the United States army, and he accompanied the latter on the expedition to establish Fort Leavenworth, Kan., in 1829. He was graduated at the United States Military Academy in 1839, and was appointed second lieutenant in the Second United States Artillery. In the permanent establishment he was promoted first lieutenant June 18, 1846; captain, Sept. 28, 1852; major and transferred to the Fifth United States Artillery, May 14, 1861; lieutenant-colonel and transferred to



the Third United States Artillery, Aug. 1, 1863; and colonel and reassigned to the Fifth Artillery, April 4, 1869; was brevetted captain for gallant and meritorious conduct in the battles of Contreras and Churubusco, Aug. 20, 1847; major for Chapultepec, Sept. 13, 1847; colonel for Gettysburg, July 3, 1863; and brigadier-general for the siege of Petersburg and the final campaign under Gen. Grant; and major-general for services in the field during the civil war, both on March 13, 1865. He was retired Aug. 31, 1883. In the volunteer service he was appointed colonel and aide-de-camp to Gen. McClellan, Sept. 28, 1861; promoted brigadier-general, Sept. 15, 1862; brevetted major-general for services at Gettysburg and in the Rapidan campaign, July 6, 1864; and was mustered out April 30, 1866. During his entire military career he served in the artillery, and throughout the civil war his labors in this line were conspicuous. He commanded the artillery on the extreme left in the Battle of Bull Run, was chief of artillery in the defenses of Washington in 1861, organized the artillery reserve of the Army of the Potomac and commanded it in the campaign on the peninsula in 1862, and was chief of artillery in the Army of the Potomac from September, 1862, till the close of the war. In 1866 he was appointed president of the permanent artillery board, and in 1885 governor of the Soldiers' Home in Washington, D. C., holding the latter office till his death. Besides a large number of technical papers in military periodicals, he published "Instruction for Field Artillery" (Philadelphia, 1860), and contributed three articles on the Battle of Gettysburg to the "Century" magazine (1886).

Hunter, James Bradbridge, physician, born in Geneva, N. Y., April 30, 1837; died in New York city, June 10, 1889. In 1862 he left his medical studies and entered the army as assistant surgeon of the 60th Indiana Volunteers, of which he subsequently became surgeon. After the war he removed to New York city and was graduated at the College of Physicians and Surgeons in 1866. He applied himself especially to diseases of women and to cancerous cases, became assistant to Dr. T. Gaillard Thomas in the Women's Hospital, a physician to the New York Infirmary for Women and Children, professor in the New York Polyclinic School, a founder and physician in the New York Cancer Hospital, editor of the New York "Medical Journal," and member of the American Medical Association, the County Medical Society, and the New York Obstetrical Society.

Johnson, Oliver, journalist, born in Peacham, Vt., Dec. 27, 1809; died in Brooklyn, N. Y., Dec. 11, 1889. He was brought up on a farm and was apprenticed to the printer's trade in the office of the "Vermont Watchman." In 1829 he found employment as a journeyman in Boston, and in 1831 joined Leonard W. Kimball in establishing the "Christian Soldier," a semi-monthly paper devoted to the promotion of Universalism. While editing this paper he began his career as an abolitionist, and his writings and speeches were so effective that in 1833 he was induced to sell his interest in the paper and become associated with William Lloyd Garrison in his anti-slavery work. In 1832 he aided in organizing the New England Anti-Slavery Society, and in 1835 a national society. In 1836 he began traveling through the New England and Middle States as lecturing agent of the American Anti-Slavery Society, and in Greenville, R. I., was mobbed. In 1838 he had editorial charge of the "Liberator"; in 1840 he became associate editor of the "National Anti-Slavery Standard" in New York city; in 1842 returned to Boston as the correspondent of the "New York Tribune"; and in 1844 accepted Horace Greeley's invitation to become assistant editor of the "Tribune." He held this office four years, and on resigning on account of failing health removed to Philadelphia and established the "Republic," a free-soil paper. From 1848 till 1865 he edited or assisted in editing the "Practical Christian," in Milford, Mass.; the "Anti-Slavery Bugle," in Salem, Ohio; the "Pennsylvania Freeman," in

Philadelphia; the "New York Tribune," and the "Anti-Slavery Standard," in New York. In 1865 he became managing editor of the New York "Independent," remained there till 1871, then took charge of the "Weekly Tribune" till after Mr. Greeley's death; was an associate on the "Christian Union" three years; proprietor and editor of the Orange, N. J. "Journal" several years; and from 1881 till within a few weeks of his death was actively engaged on the New York "Evening Post." He published "William Lloyd Garrison and his Times" (1880).

Johnston, Alexander, educator, born in Brooklyn, N. Y., April 29, 1849; died in Princeton, N. J., July 21, 1889. He was graduated at Rutgers College in 1870, was admitted to the bar in New Brunswick, N. J., in 1876, taught three years in Rutgers College Grammar School, and in 1879 was chosen principal of the Latin school in Norwalk, Conn. In 1883 he became Professor of Jurisprudence and Political Economy in Princeton College, and held the office till his death. Prof. Johnston was an enthusiastic student of American history. His publications include "History of American Politics" (1879); "The Genesis of a New England State" and "Connecticut" in the "Johns Hopkins University Series" (1884); "Representative American Orations, with an Outline of American Political History" (1885); "History of the United States, for Schools" (1886); and "History of Connecticut" for the "American Commonwealth Series" (1887). He had contributed to the "Encyclopædia Britannica," and at the time of his death had completed "The United States: its history and Constitution" (1889).

Johnston, John Warfield, lawyer, born in Panicello, Va., Sept. 9, 1818; died in Richmond, Va., Feb. 27, 1889. He was educated at South Carolina College, studied law in the University of Virginia, and was licensed to practice in 1839. In 1840 he removed to Tazewell County, where he was appointed commonwealth's attorney. He held this office two years, was a State Senator in 1846-'48, and was one of the bolting Democrats who voted for R. M. T. Hunter for United States Senator in the celebrated Smith-Hunter canvass. After the civil war he was appointed a judge of the circuit court of Virginia. He was elected United States Senator as a Conservative, in 1870, and was re-elected in 1876. While in the Senate he served as member of the committees on transportation routes to the seaboard, on patents, and the select committee to take into consideration the election of President and Vice-President, and was chairman of the committee on agriculture, and of the joint select committee on the Yorktown Centennial Celebration.

Jones, Justin, journalist, born in Maine, in 1815; died in Cromwell, Conn., Feb. 19, 1889. He learned the printer's trade in early life, removed to Boston, and became proprietor of the "Boston Pearl and Literary Gazette." Removing to Greenfield, he became a writer on the "Gazette" of that town, and in 1836 went to Cleveland, Ohio, and was first engaged in the book-selling business, and afterward established a printing office where the early numbers of the "Herald" were printed. About 1840 he returned to Boston, and was connected with various publications, among them the "Yankee Privateer" and the "Yankee Blade," contributing many stories under the pen-name of "Harry Hazel." He was for many years a contributor to the "New York Weekly" and the "New York Tribune," and he served in the Massachusetts Legislature.

Jones, Roger, soldier, born in the District of Columbia; died in Fort Monroe, Va., Jan. 26, 1889. He was graduated at the United States Military Academy, July 1, 1847; brevetted second lieutenant in the Mounted Rifles, July 1, 1851; and promoted second lieutenant, May 24, 1852; first lieutenant, Jan. 26, 1857; captain and assistant quarter-master, April 23, 1861; major and assistant inspector-general, Nov. 12, 1861; lieutenant colonel, June 13, 1867; colonel and inspector-general, Feb. 5, 1885; and brigadier-general and inspector-general, Aug. 20, 1888. During his

career in the army he was cavalry instructor at the United States Military Academy, on frontier duty in Texas, on the Gila Expedition, on Western frontier duty and in several Indian campaigns, and in constant service through the civil war.

Juengling, Frederick, engraver on wood, born in New York city, Oct. 8, 1846; died there, Dec. 31, 1889. He learned engraving on wood at an early age, was employed several years on the illustrated publications of Harper & Brothers and Frank Leslie; subsequently engraved many pictures for magazines and book illustrations, and was one of the first engravers on wood to make a specialty of reproducing the artist's drawing in fac-simile. While engaged in engraving, he began to study in the Students' Art League, and there prepared himself for his later work as an artist in water color and oil, subsequently adding a season of study in Rome. He was a founder of the American Society of Wood Engravers, and its secretary in 1881-'82, was first vice-president of the Student's Art League in 1882-'83, and received honorable mention in the Paris Salon in 1881, and a second-class medal at the exhibition in Munich in 1883. Among his notable engravings were "A Horse Hospital," drawn by William Kelly; "The Professor," by Frank Duveneck; and "The Voice of the Sea," by Arthur Quartley. His chief paintings were "The Intruder" (1884); "Westward Bound" (1884); and "In the Street" (1886).

Kendrick, James Ryland, clergyman, born in Poultney, Vt., April 21, 1821; died in Poughkeepsie, N. Y., Dec. 11, 1889. His father, the Rev. Clark Kendrick, a Baptist clergyman, was organizer and

officer of the Baptist educational and missionary societies of Vermont. The son was graduated at Brown University in 1840, delivering the classical oration. He went to the South where three elder brothers had preceded him, taught for two years in Georgia, in 1842 was ordained to the Baptist ministry, and soon afterward became pastor of a church in Macon. He married



Arabella Randall, daughter of a planter. In 1847 he accepted a call from the First Baptist Church of Charleston, S. C., which had been founded in 1683. In 1883 the organization, which had outlived the civil war, a great fire, a cyclone, and an earthquake, held its two-hundredth anniversary. The biographer of the occasion, the Rev. H. A. Tupper, says: "Dr. Kendrick's pastorate was the prosperous one of this period. Perfect harmony prevailed; there were a number of revivals. The Sunday-school was vigorous, and the negroes were instructed intelligently and systematically. The building was renovated, and the laws improved. Two churches were formed from the membership without the least discord. The liberality of the church was unusual, especially for the cause of temperance. The pastor was the most polished and popular man in the Charleston pulpit, but not more elegant than evangelical. He seemed to make the most of his own powers for the Master's use, and, with a rare power of ruling without seeming to rule, he so commanded the forces around him that the church was like an army in the thick of field action." After he had remained with this church seven years, it was thought best to form another important colony from it, which Dr. Kendrick organized. In a short

time he had a large and earnest body of worshippers about him, who erected a beautiful edifice, which took its name from its location, becoming the Citadel Square Baptist Church. He was pastor of this society when, in 1860, the South Carolina secession convention was held. Dr. Kendrick gives a vivid description of this and of many other notable scenes in which he was a participant in an article published in the "Atlantic Monthly" for October, 1889, entitled "A Non-Combatant's War Reminiscences." Of his own feeling, he writes: "After a moment of wavering indecision, my dissatisfaction with the whole Southern spirit and policy became positive and deep. It goes without saying that, with these convictions and feelings, my position was anomalous, difficult, and, in a qualified sense, painfully false. I was far, however, from being alone in this contradictory and trying situation." The younger men of his church rushed into the army. Old men, women, and children remained, and he continued his ministrations among them until, in 1862, non-combatants were warned to leave the city, when he removed his family to Madison, Ga., where he soon accepted a call to act as pastor. The large academy of the place was also without a principal, and he consented to act in that capacity as well. Of this residence he says: "It was an ideal refuge amid the storm and stress of the time." After the battles around Chattanooga, the academy was taken for a hospital. The close of hostilities found Dr. Kendrick poor. His savings had been invested in bales of cotton, which the carelessly thrown match of a Confederate soldier had destroyed. In November, 1865, he was called to the pastorate of the Tabernacle Baptist Church in New York city, where he remained seven years. In 1873 he removed to Poughkeepsie, N. Y., where he built up a strong society, which, under his leadership, erected a fine edifice. He also became connected with Vassar College, having a place in its executive board. His wife died in 1878, and in 1880 he married Miss Georgia Avery. In the following year he resigned his pastorate, and went abroad for a third time, making an extended visit. On his return he filled for a time the pulpit of the Mount Morris Church in Harlem. When in 1885 the presidency of Vassar College became vacant, he accepted the post for one year at the urgent request of the executive board, and won all hearts by the manner in which he discharged the trust. When the place was filled by a permanent appointment, Dr. Kendrick took up his residence in Poughkeepsie, retaining his interest both in his old church and in the college, in which by his will he endowed a scholarship. While in Charleston, Dr. Kendrick edited "The Southern Baptist," and published a few pamphlets. He prepared in 1887, in connection with Prof. Frederick L. Ritter, the "Woman's College Hymnal," and he had contributed largely to the periodical press. Personally, he was a man of the rarest charms. To physical beauty he added grace, elegance, and ease of diction, gentleness, modesty, dignity, mirthfulness, sincerity. The University of Rochester conferred the degree of D. D. upon him in 1866.

Kinney, Elizabeth Clementine, poet, born in New York city, Dec. 18, 1810; died in Summit, N. J., Nov. 19, 1889. She was the daughter of David L. Dodge, a New York merchant, a leader in Presbyterian circles, and the author of several theological works. One of Mrs. Kinney's brothers was William E. Dodge, the philanthropist; and through her mother, a daughter of Rev. Aaron Cleveland, she was related to Bishop A. Cleveland Coxe, ex-President Cleveland, Col. Thomas W. Higginson, and the Boston family of Channings. A portion of her childhood was passed in Connecticut, where her father often resided while superintending his business interests in that State. In 1830 she married Edmund Burke Stedman, a merchant of Hartford, Conn., afterward major of the Governor's Foot Guard in the latter city. She lived at Hartford until his death in 1836, and then removed to her father's country house at Plainfield, N. J., with her two sons, one of whom died in early man-

hood. The other is Edmund C. Stedman. In 1841 she became the second wife of William Burnet Kinney, founder of the Newark (N. J.) "Daily Advertiser." She remained at Newark until her husband's appointment in 1851 to the Sardinian mission, when she accompanied him to Turin. Through her widowhood and the succeeding period she contributed poetry to "Graham's," "Sartain's," "The Knickerbocker," and "Blackwood's Magazine," having composed in verse almost from childhood. During her three years' residence at the court of Victor Emanuel and a subsequent stay of seven years in Florence, she contributed to her husband's paper a series of letters on manners, nature, and art in Italy. At Florence she was closely associated with the Brownings, the Trollopes, Charles and Frederick Tennyson, Mrs. Somerville, the younger Lytton, Hiram Powers, Buchanan Read, and other persons of note, who frequented her literary receptions. The Kinneys returned to America in 1865 with their two daughters, one of whom married a son of Bishop Kip, of California. Mrs. Kinney had published while at Florence "Felicitia; a Metrical Romance" (1855), and she now brought out a collective edition of her "Poems" (1867) and "Bianca Capello; a Tragedy" (1873). It is understood that she latterly had been writing her personal reminiscences, which may hereafter be given to the public. Among her best known poems are "The Spirit of Song," "To an Italian Beggar-Boy," "To the Eagle," "The Quakeress Bride," and "Ode to the Moon." Her husband died in 1830, and she afterward led a quiet life at Summit, occasionally contributing to periodicals. With great force of character, she was a woman of rare beauty and social charm, noted for her grace and vivacity in conversation; of unusual taste, a critic by instinct and cultivation, and a natural lyric poet. These attributes, with a peculiar air of youth, she retained almost to the last.

Laird, James, lawyer, born in Fowlerville, Livingston Co., N. Y., June 20, 1845; died in Hastings, Neb., Aug. 17, 1889. He was taken to Michigan when a child, educated at Michigan University, and graduated at its Law School in 1871. He enlisted as a private in a Michigan regiment in July, 1862, and served with the Army of the Potomac till the close of the war. He was a member of the Nebraska Constitutional Convention in 1875, and a presidential elector in 1880, and was elected to Congress from the Second Nebraska District as a Republican in 1882, 1884, and 1886. While in Congress he served as a member of the committees on agriculture and on military affairs.

Lambkin, James R., artist, born in Pittsburg, Pa., May 10, 1807; died near Philadelphia, Pa., Jan. 31, 1889. He began studying art in Philadelphia, and for many years was engaged in portrait painting at Pittsburg and at Louisville. In the latter city he established a museum of art and antiquities on the plan of Peale's. This venture not proving successful, he returned to Philadelphia. Among his numerous portraits were those of every President of the United States from John Quincy Adams to James A. Garfield, nearly all of which were painted in the Executive Mansion, and a full-length portrait of President William Henry Harrison, ordered by the State of Louisiana.

Langdon, Charles C., politician, born in Southington, Conn., Aug. 5, 1805; died in Mobile, Ala., June 8, 1889. He removed to Alabama in 1820; became editor of the "Mobile Advertiser," a Whig organ, in 1834; was elected to the Legislature in 1839 and 1840, and after the expiration of his second term returned to editorial work till 1848, when he was elected Mayor of Mobile. He held this office till 1855. During the civil war he was again elected to the Legislature, and in 1865 was a member of the State Constitutional Convention. The same year he was elected to Congress, but was not permitted to take his seat. He then served a third term in the Legislature; was a member of the Constitutional Convention in 1878;

was appointed Secretary of State to fill a vacancy in 1885; and was elected to the office in 1886 and 1888.

Lester, George, pilot, born in Cairo, N. Y., June 1, 1804; died in Hoboken, N. J., April 14, 1889. In 1820 he found employment on a Hudson river sloop, worked up to captain, and in 1835 began his career as a pilot on the steamboat "Baltimore." He was the first pilot that took a steamboat through Newark Bay from New York to Newark, and during his service of thirty-five years with the People's line commanded the steamboats "Rochester," "Utica," "New World," "South America," "Isaac Newton," and "Hendrik Hudson." When in command of the "Isaac Newton," he beached her and saved every life on board. In recent years he had served on the Albany boat "J. B. Schuyler," and the boats of the Hoboken ferry. He was the oldest North river pilot.

Lewis, Edward, jurist, born in Washington, D. C., Feb. 22, 1820; died in St. Louis, Mo., Sept. 21, 1889. He removed to Missouri in 1845; studied law and was admitted to the bar, and settled in St. Louis in 1851. He there edited the "Daily Intelligencer," and became active in Democratic politics. In 1860 he was a Breckinridge presidential elector, and in 1868 a Seymour elector. He was elected a judge of the Court of Appeals for a term of twelve years beginning Jan. 1, 1877, and became presiding judge of the court.

Litchfield, Electus B., railroad builder, born in Delhi, N. Y., about 1811; died in Brooklyn, N. Y., May 12, 1889. He engaged in the wholesale grocery business in New York city in 1844; removed to Brooklyn in 1846; was elected alderman in 1851; and about the same time became interested in railroad construction. He was a director and builder of the Michigan Southern and Northern Indiana Railroad; was interested in the Lake Shore, the Cleveland and Toledo, and the Terre Haute and Alton railroads; built the Atlantic Avenue and Fifth Avenue railroads in Brooklyn; obtained the charter for an elevated railroad in Fifth Avenue, Brooklyn; and was one of the promoters of Prospect Park, contributing a large tract of land and assisting in laying out the grounds.

Lloyd, David Demarest, journalist, born in New York city, Sept. 1, 1851; died in Hoboken, N. J., Sept. 4, 1889. He was graduated at the College of the City of New York in 1870, and became a reporter on the "New York Tribune" in August of that year. In 1871 Chief-Justice Chase appointed him his private secretary, which office he retained till Judge Chase's death. He then returned to the "Tribune," was promoted to assistant and day editor; became Albany correspondent in 1875; and remained there throughout the memorable canal-ring exposures and trials, and after a further editorial service on the "Tribune," succeeded the late Zebulon L. White as its chief Washington correspondent. In 1884 he began an extended vacation in Europe, returning to his editorial desk in 1887, and remaining there till the day of his death. Mr. Lloyd was author of the plays "For Congress" (1882); "The Woman-Hater" (1885); "The Dominie's Daughter" (1886); and "The Senator" (1889).

Logan, George W., jurist, born in Chimney Rock, N. C., in 1818; died there, Oct. 17, 1889. He was elected clerk of the State Supreme Court in 1845; and in 1863 was admitted to the bar. During the civil war he served in the Confederate Congress and the Confederate army, and was wounded. In 1866 he was a member of the Constitutional Convention; in 1867 a member of the Legislature; and from 1868 till 1877 was a judge of the State Superior Court.

Loomis, Elias, educator, born in Willington, Conn., Aug. 7, 1811; died in New Haven, Conn., Aug. 15, 1889. He was graduated at Yale College in 1830; was tutor in science there in 1833-'36; discovered the return of Halley's comet, and computed its orbit from his own observations in 1835; spent 1836 studying with Arago, Biot, Dulong, Pouillet, and other eminent scholars in Paris; and for seven years after his return to the United States was Professor of Mathematics and Natural Philosophy in Western Reserve

College, Ohio. In 1844 he became Professor of Natural Philosophy in the University of the City of New York, and during the sixteen years that he occupied this chair he began the publication of a series of text-



books on mathematics and astronomy. In 1860 he became Munson Professor of Natural Philosophy and Astronomy in Yale College, and retained that chair till his death. He made a comparison from 1846 till 1849, by telegraph, of different longitudes, and determined by original observations the velocity of the electric fluid on telegraph wires. He

was elected a member of the National Academy of Sciences in 1873; and was honored with membership in the most important scientific societies of America and Europe. Prof. Loomis's publications included "Plane and Spherical Trigonometry," "Progress of Astronomy," "Analytical Geometry and Calculus," "Elements of Algebra," "Elements of Geometry and Conic Sections," "Tables of Logarithms," "Practical Astronomy," "Natural Philosophy," "Elements of Arithmetic," "Treatise on Meteorology," "Elements of Astronomy," "A Treatise on Arithmetic," "A Treatise on Algebra," "Algebraic Problems and Examples," "A Treatise on Astronomy," and "The Descendants of Joseph Loomis." He bequeathed all his books and pamphlets relating to mathematical and physical sciences to Yale College, and also made it the residuary legatee of his estate, which was estimated at from \$250,000 to \$300,000, for the promotion of astronomical science.

Lord, Samuel, merchant, born in Yorkshire, England, in 1803; died in Ashton, Cheshire, England, May 23, 1889. He served an apprenticeship in the iron-molding trade, and came to New York when twenty-three years old. He first established himself in business on borrowed capital in Catharine Street, and after struggling alone for two years sent to England for his wife, child, and wife's cousin, George W. Taylor, with whom he founded the house of Lord & Taylor. In 1854 the firm removed to the corner of Grand and Chrystie Streets, in 1860 built a new store at Broadway and Grand Street, and in 1870 established another store at Broadway and Twentieth Street, retaining the original Grand Street establishment. Mr. Lord retired from the firm shortly before the uptown store was erected, and his place was taken by his two sons. He resided in England after his retirement.

Loughridge, William, lawyer, born in Youngstown, Ohio, July 11, 1827; died near Reading, Pa., Sept. 26, 1889. He received a common-school education, was admitted to the bar in 1849, began practicing in Mansfield, Ohio, and removed to Iowa in 1852. He was elected to the State Senate in 1857, 1858, 1859, and 1860. In 1861 he was elected judge of the Sixth Judicial District of Iowa, and held the office till January, 1867, when he resigned to take his seat in Congress from the Sixth Iowa District, to which he had been elected as a Republican. He was re-elected to Congress in 1868, 1870, and 1872.

Machebœuf, Joseph Projectus, clergyman, born in Riom, France, Aug. 11, 1812; died in Denver, Col., July 10, 1889. He was graduated at Riom College and the Sulpician Seminary at Montferran, was ordained a Roman Catholic priest in 1836, came to the United States as a missionary in 1839, and in 1840 was appointed to a pastorate in Sandusky, Ohio, where he remained till 1852. He was vicar-general of New Mexico from 1852 till 1860, and was then transferred in the same capacity to Colorado. He built the first

Roman Catholic church in Denver, and in eight years built seventeen churches or chapels in the Territory, a convent for the Sisters of Loreto, an academy, and a school for boys. In 1868 the Pope constituted the vicariate-apostolic of Colorado and Utah, and appointed Dr. Machebœuf titular Bishop of Epiphania, with jurisdiction over the vicariate.

McCue, Alexander, lawyer, born in Matamoras, Mexico, May 1, 1826; died in Brooklyn, N. Y., April 2, 1889. He was graduated at Columbia College in 1846, spent three years in foreign travel and study at Heidelberg, and was admitted to the bar in Brooklyn in 1850. He was assistant District Attorney in 1851-'52, was elected Corporation Counsel in 1859, and for a second term, and after an interval of one term was re-elected for a third. In May, 1870, he was elected one of the two justices of the Brooklyn City Court, and served till Dec. 31, 1884, becoming chief judge in 1882. In 1885 he was appointed solicitor of the Treasury, in 1886 declined the office of Assistant Treasurer of the United States at New York, but in February, 1888, accepted the office.

McGill, Alexander Taggart, educator, born in Canonsburg, Pa., Feb. 24, 1807; died in Princeton, N. J., Jan. 13, 1889. He was graduated at Jefferson College in 1826; was tutor in mathematics there one term; removed to Milledgeville, Ga., studied law, was admitted to the bar, and soon afterward was appointed commissioner to survey and fix the boundary lines of Georgia and Alabama. He returned to Canonsburg in 1831. Believing he had but a short time to live in consequence of serious lung trouble, he relinquished the practice of law, studied in the Theological Seminary of the Associate (now United Presbyterian) Church at Canonsburg, was licensed to preach in 1834, and was installed pastor of three small churches in 1835. In 1838 he left the Associate and connected himself with the Old School Branch of the Presbyterian Church; in 1838-'42 held a pastorate in Carlisle, Pa.; in 1842-'52 was Professor of Hebrew and Church History at Western Theological Seminary; in 1852-'53 was a professor in the Theological Seminary at Columbia, S. C.; and in 1854-'83 was Professor of Ecclesiastical, Homiletic, and Pastoral Theology in Princeton Theological Seminary. Dr. McGill was Moderator of the General Assembly of the Presbyterian (Old School) Church in 1848, its permanent clerk from 1850 till 1862, and its stated clerk from 1862 till 1870. At the time of his death he had a work on "The Ordinances of the Presbyterian Church" in press.

McKay, Charles F., educator, born in Northumberland, Pa., in 1810; died in Baltimore, Md., March 12, 1889. In 1831 he removed to Georgia, and was there engaged in educational work till 1869, when he settled in Baltimore. He was President of Georgia State University at Athens for many years, and bequeathed it a handsome endowment.

Mackenzie, Ranald Slidell, soldier, born in New York, in August, 1840; died in New Brighton, Staten Island, N. Y., Jan. 19, 1889. He was a son of Commander Alexander Slidell Mackenzie, U. S. N., was graduated at the United States Military Academy in 1862, and was commissioned second lieutenant of engineers. In the permanent establishment he was promoted first lieutenant March 3, 1863; captain, Nov. 6, 1863; colonel of the Forty-first United States Infantry, March 6, 1867; transferred to the Twenty-fourth Infantry March 15, 1869; and to the Fourth Cavalry Dec. 15, 1870. He became brigadier-general Oct. 26, 1882, and was retired, on account of insanity resulting from a fall, March 24, 1884. In the volunteer service he was commissioned colonel of the Second Connecticut Artillery July 10, 1864; was promoted brigadier-general Oct. 19, 1864; brevetted major-general March 31, 1865; and mustered out of the service Jan. 15, 1866. Gen. Mackenzie distinguished himself in the battles of Manassas, Chancellorsville, Gettysburg, Petersburg, Cedar Creek, Opequan, Fisher's Hill, and Middletown, and after the war became noted for his encounters with Mexican and Indian outlaws, whom he pursued several times across the Mexican border.

McTyeire, Holland Nimmons, educator, born in Barnwell District, S. C., July 28, 1824; died in Nashville, Tenn., Feb. 15, 1889. He was graduated at Randolph Macon College in 1844, was tutor there one year, entered the ministry of the Methodist Episcopal Church in 1845, was transferred to Alabama in 1846, and held pastorates in New Orleans from 1848 till 1858. While in New Orleans he founded and edited for seven years the "Christian Advocate." In 1858 he was elected editor of the "Christian Advocate" at Nashville, Tenn., and during the civil war he was pastor of the Southern Methodist Church in Montgomery, Ala. He was elected a bishop of the Methodist Episcopal Church, South, at the General Conference of 1866, in which also he introduced the motion that resulted in the provision for lay delegates in the Southern conferences. Through his efforts Cornelius Vanderbilt gave \$1,000,000 to found the university at Nashville that bears his name in 1873, and he became president of the board of trustees and first president of the university, holding both offices till his death. He was vice-president of the Western section of American Methodism in the œcumenical conference in 1881. He published a prize essay, "The Duties of Christian Masters" (Nashville, 1851); "A Catechism on Church Government" (1869); "A Catechism on Bible History" (1869); "Manual of the Discipline" (1870); and "A History of Methodism" (1884).

Magoon, Henry S., lawyer, born in Monticello, Wis., Jan. 31, 1832; died in Darlington, Wis., March 8, 1889. He was graduated at the Western Military College, Kentucky, in 1853; studied law at Montrose Law School; was Professor of Ancient Languages at Nashville University in 1855-'57; returned to Wisconsin to practice law and was elected district attorney in 1858 and State Senator in 1871 and 1872. In 1874 he was elected to Congress from the Third Wisconsin District as a Republican. He was the first native of Wisconsin ever elected to the State Senate or to Congress.

Mahan, Asa, educator, born in Vernon, N. Y., Nov. 9, 1800; died in Eastbourne, England, April 4, 1889. He was graduated at Hamilton College in 1824, and at Andover Theological Seminary in 1827; held pastorates in Pittsford, N. Y., and Cincinnati, Ohio, from 1829 till 1835; was President of Oberlin College in 1835-'50, of Cleveland University in 1850-'54, and of Adrian College in 1860-'71. After 1871 he resided in England and applied himself to religious and philosophical writing. He published "System of Intellectual Philosophy" (New York, 1845); "Election and the Influence of the Holy Spirit" (1851); "Modern Mysteries explained and exposed" (Boston, 1855); "The Science of Logic" (New York, 1857); "The Science of Natural Theology" (Boston, 1867); "Phenomena of Spiritualism scientifically explained and exposed" (1876); "Critical History of the Late American War" (1877); "Mental Philosophy" (1882); and "Critical History of Philosophy" (1883).

Mahoney, Peter Paul, merchant, born in New York city, June 25, 1848; died in Washington, D. C., March 27, 1889. He was in the dry-goods business in New York for many years, removed to Brooklyn about 1864, and subsequently carried on the liquor business. In 1884 he was elected to Congress from the Fourth New York District as a Democrat, and in 1886 was re-elected.

Martin, John A., soldier, born in Brownsville, Pa., in 1839; died in Atchison, Kan., Oct. 2, 1889. He received a common-school education, was apprenticed to the printer's trade, and removed to Atchison in 1857. In 1859 he was chosen secretary of the Wyandotte Constitutional Convention, and he became a delegate and one of the secretaries to the first State Republican Convention in Kansas. In the following year he was elected a State Senator, and was a delegate to the National Republican Convention. In 1861, while postmaster of Atchison, he was appointed lieutenant-colonel of the Eighth Kansas Infantry, with which he joined the Army of the Cumberland. He took part in the battles of Perryville, Chickamauga,

those of the Knoxville Campaign, Mission Ridge, and the Atlanta Campaign, and was mustered out of the service with the rank of brigadier-general. After the war he served a term as Mayor of Atchison, was elected Governor in 1884, and at the time of his death edited and owned the Atchison "Champion."

Matteson, Orsamus B., lawyer, born in Verona, Oneida County, N. Y., in 1805; died in Utica, N. Y., Dec. 22, 1889. He received a common-school education, studied law in the same office with Horatio Seymour, and subsequently held partnerships with Judges William J. Bacon, P. Sheldon Root, and Charles H. Doolittle. He was conspicuous in the early Free-Soil Movement, was the first city attorney of Utica, a commissioner of the Supreme Court of New York for many years, and a Representative in Congress from 1849 till 1859, excepting one term. During his last term he was one of the victims of the Washington poisoning, from which he never recovered, and was the subject of considerable excitement from being charged with declaring that a large number of the members of Congress were purchasable. A resolution to expel him was offered and bitterly debated, but was ultimately tabled, after which he resigned.

Matthews, Cornelius, author, born in Port Chester, N. Y., Oct. 28, 1817; died in New York city, March 25, 1889. He was graduated at the University of the City of New York in its first class in 1835, was admitted to the bar in 1837, practiced less than a year, and then applied himself wholly to literary work. He founded "Yankee Doodle," the first successful comic paper in New York, and in 1840, with Evert A. Duyekine, established "Areturus," a monthly magazine. In 1843, in association with William Cullen Bryant, Parke Godwin, and Francis L. Hawkes, he founded the Copyright Club to promote international copyright, and was its first president. Soon afterward he turned his attention to dramatic writing. His first play that was produced was the comedy, "The Politicians," and this was followed by "Witchcraft," produced in Philadelphia in 1846 and subsequently translated into French; "Jacob Leisler," a drama produced in 1848; and "False Pretenses," a comedy, about 1852. He was the first American editor of the works of Elizabeth Barrett Browning, and published among other works: "The Motley Book," "Behemoth: a Legend of the Mound-Builders," "Wakendale," an Indian poem, "Big Abel and Little Manhattan," "Moneypenny; or the Heart of the World," and "Poems on Man."

Matthews, Stanley, jurist, born in Cincinnati, Ohio, July 21, 1824; died in Washington, D. C., March 22, 1889. He was graduated at Kenyon College in 1840; admitted to the bar in 1842, began practice in Maury County, Tenn., and returned to Cincinnati in 1844. In 1845 he was appointed assistant prosecutor for Hamilton County; soon afterward became editor of the Cincinnati "Herald," an antislavery paper; in 1848-'49 was clerk of the State Assembly; and in 1850-'53 was a judge of the county Court of Common Pleas. After spending two years in private practice, he was elected a State Senator, and in 1858 was appointed United States district-attorney for the Southern District of Ohio, which office he resigned in 1861 when he also joined the Republican party. At the outbreak of the civil war he was commissioned lieutenant-colonel of the Twenty-third Ohio Volunteers, of which Will-



iam S. Rosecrans was colonel, and Rutherford B. Hayes major, and in November, 1861, he was commissioned colonel of the Fifty-first Ohio Volunteers, with which he served till 1863, when he resigned to accept the office of judge of the Superior Court of Cincinnati, to which he was elected while in the field. In 1864 he resigned this office. He was a Republican presidential elector in 1864 and 1868, was defeated for Congress in 1876, succeeded John Sherman, on his appointment as Secretary of the Treasury, in the United States Senate in 1877, served there two years, and was appointed an associate justice of the United States Supreme Court in January, 1881. The nomination excited hostility both in the Senate and its Judiciary Committee, to whom it was referred, and, in spite of the exertions of his friends, the Judiciary Committee declined to approve the nomination, and it failed with the adjournment of Congress. On March 15, President Garfield renominated him, and it was not till May 12 that he was confirmed, and then by a vote of 24 to 23. The principal objection to him on the Republican side was his opposition while a Senator to the Pacific Railroad Funding bill, and on the Democratic side, that he was one of the visiting statesmen to Louisiana and counsel for the Republicans before the Electoral Commission in 1876.

Matthieu, Henri, centenarian, born in Vendôme, France, April 1, 1788; died in New York city, May 7, 1889. He served in the French Hussars under Napoleon I, and participated in several historical battles, including those of Leipsic and Waterloo, receiving a wound in the latter. He was able to walk till within a few months of his death, and retained his faculties to the last.

Mattoou, Stephen, educator, born in Champion, N. Y., May 5, 1816; died in Marion, Ohio, Aug. 15, 1889. He was graduated at Union College in 1842, and at Princeton Theological Seminary in 1846; went to Siam under the auspices of the Presbyterian Board of Foreign Missions in 1846, and labored there till 1866; was pastor of the Presbyterian Church at Ballston Spa, N. Y., in 1867-69; President of Biddle University in Charlotte, N. C., from 1870 till 1884; and Professor of Systematic Theology there from 1877 till within a short time of his death. He translated the New Testament into Siamese (Bangkok, 1865).

Meade, Edwin Ruthven, lawyer, born in Norwich, N. Y., July 6, 1836; died in New York city, Nov. 28, 1889. He was admitted to the bar in 1858, and practiced in Norwich till 1872, when he removed to New York city. In 1874 he was elected to Congress from the Fifth New York District as a Democrat, and, while a member of that body, distinguished himself as a member of the special committee on the investigation of the Chinese immigration question, spending several months in California and on the Pacific slope in personal study of the subject.

Merriek, William M., lawyer, born in Charles County, Md., Sept. 1, 1818; died in Washington, D. C., Feb. 4, 1889. He received a collegiate education, studied law in the University of Virginia, was admitted to the bar in Baltimore in 1839, and settled in Frederick. Removing to Washington, he was appointed an associate justice of the Circuit Court of the District of Columbia in 1854, and held the office till the abolition of the court in 1863. He then resumed private practice in Maryland till 1870, when he was elected to Congress from the Fifth Maryland District as a Democrat. He served on the Committee on Elections and the select committee to investigate the alleged Crédit Mobilier bribery, opposed the "salary grab" act, and refused to accept back pay. In 1885 he was appointed judge of the Supreme Court of the District of Columbia.

Miller, John Ieland, physician, born in Adams, Mass., June 2, 1813; died in Sheffield, Mass., April 17, 1889. He was graduated at the Berkshire Medical College in 1837, went to New Orleans to practice, became surgeon of a surveying party at the mouth of the Mississippi, was shipwrecked in the Caribbean Sea, and settled in Providence, R. I., in 1838. In 1844 he became Professor of Anatomy and Physiology in the Illinois State

University. At the outbreak of the Mexican War he entered the army, was appointed an assistant surgeon of volunteers May 27, 1848, promoted surgeon and major July 13, and served to the close of the war. He subsequently bought a large tract of land in Illinois and established a model stock farm, which was the site of the present town of Fairbury. In 1856 he established a similar farm at Pittsfield. In 1861 he was appointed surgeon of the First Battalion, Sixth Brigade of Massachusetts militia. In 1866 he settled in Sheffield. In 1888 he gave \$40,000 to Williams College to establish a professorship of American History, Literature, and Eloquence.

Milnes, William, Jr., manufacturer, born in Lancashire, England, Dec. 8, 1827; died in Page County, Va., Aug. 14, 1889. When he was two years old his parents emigrated to the United States, and settled in Pottsville, Pa., where his father engaged in mining and manufacturing iron. The son apprenticed himself to the machinist's trade, and on completing his time joined his father and brother in mining and shipping coal. In 1865 he bought the Shenandoah Iron Works, in Page and Rockingham counties, and carried on the works till his death. In 1868 he was elected to Congress as a Conservative.

Minor, William Thomas, jurist, born in Stamford, Conn., in 1815; died there, Oct. 13, 1889. He was graduated at Yale College in 1834, studied law, and was admitted to the bar in 1841. He was a member of the Legislature eight years, was elected Governor of the State in 1855, was United States consul at Havana from 1864 till 1867, and on returning home he was appointed judge of the State Supreme Court, and held the office till 1873.

Mitchell, Maria, astronomer, born in Nantucket, Mass., Aug. 1, 1818; died in Lynn, Mass., June 28, 1889. She was the daughter of William Mitchell, an astronomer of merit, and early acquired an interest in his work. At first her only teacher was Mr. Mitchell, but as she grew older she was sent to a school taught by Cyrus Peirce, whose assistant she then became. Meanwhile she aided her father in his studies, and was also active in the home management, as the family was large. At the age of eighteen she was appointed librarian of the Nantucket Athenæum, which place she held for twenty years, and she was proud of the fact that she had regularly earned a salary from the time she was seventeen years old. This appointment gave her more leisure to devote to astronomical studies. She made a specialty of examining nebulae and searching for comets, besides making many careful observations. After discovering several small nebulae, she found a comet on Oct. 1, 1847. This discovery was confirmed by her father, and the news was sent to Prof. William C. Bond, of the Harvard Observatory. A few days later Father de Vico saw the same comet in Rome, and it was subsequently seen by observers in Kent and Hamburg. She was awarded the gold medal offered by the King of Denmark for the discovery of a telescopic comet, and the republic of San Marino, in Italy, struck a copper medal in her honor. In later years she discovered other comets, until her record included seven not known before. When the publication of the "American Nautical Almanac" was begun, she was employed on that work, continuing it until after she was called to Vassar. In 1858 she went to Europe. In England she was entertained by Sir John Herschel and Sir George B. Airy, the astronomer royal. Leverrier received her in Paris, and Humboldt in Berlin, where she also met Eucke. In Rome she met Fredrika Bremer, and



became intimate with the family of Nathaniel Hawthorne, with whom she traveled from Paris to Italy. During her absence a fund was raised by the women of America, through the exertions of Miss Elizabeth Peabody, of Boston, and on her return she was presented with a telescope much larger than that owned by her father. At first this instrument was set up in Nantucket, but later, when her father moved to Lynn, she accompanied him, taking her telescope with her. In 1865 she was called to the chair of Astronomy at Vassar College, which place, with that of director of the college observatory, she held until January, 1888, when failing health compelled her resignation. This the trustees declined to accept, and granted her an indefinite leave of absence, with payment of her full salary. After her resignation she returned to her family in Lynn, and there spent the last days of her life. A reception in her honor was made a feature of the alumnae meeting of the Vassar Association in New York city early in 1888, but she was unable to be present, and wrote: "It goes to my heart to say that I can not come, but I am tired, and after more than half a century am trying to rest." At that meeting it was decided to endow the chair of Astronomy as a memorial to Miss Mitchell, and \$40,000 was pledged for that purpose. The degree of LL. D. was given her by Hanover College in 1853. Miss Mitchell was the first woman elected to the American Academy of Arts and Sciences, and in 1850 joined the American Association for the Advancement of Science, of which she was made a fellow in 1874. She presided over the American Association for the Advancement of Women at Syracuse in 1875, and at Philadelphia in 1876. During recent years her astronomical studies were devoted to sunspots and the satellites of Jupiter. Her published writings were restricted to scientific papers, with the exception of a poem entitled "How Nantucket was made," contributed to a volume called "Sea-Weeds from the Shores of Nantucket" (1853). Her character, and perhaps her success in life, are best described by her own words, for, as she said, "I was not born with much genius, but with great persistency."

Montague, Charles Howard, journalist, born in Greenfield, Mass., Oct. 16, 1858; died in Boston, Mass., Nov. 19, 1889. He was graduated at the High School in Cambridge, entered journalism, and became city editor of the Boston "Globe." He published the following stories: "The Face of Rosentel," "Two Strokes of the Bell," "The Romance of Two Lilies," "The Doctor's Mistake," and "The Countess Muta."

Moore, Samuel Preston, physician, born in South Carolina, in 1815; died in Richmond, Va., May 31, 1889. He was educated for a physician, entered the United States army as an assistant surgeon March 14, 1835, served through the Mexican War, was commissioned surgeon and major April 30, 1849, and resigned on the secession of South Carolina. On the organization of the Confederate army he was appointed surgeon-general, and he held this office till the close of the war. He afterward settled in Richmond, resumed practice, and became active in educational matters.

Morton, John P., publisher, born in Lexington, Ky., in 1807; died in Louisville, Ky., July 19, 1889. In 1823 he became a clerk in a book store, in 1825 removed to Louisville and engaged in the same business on his own account, and subsequently became also a publisher of educational works and the head of the largest establishment of its kind in the South. He built the Morton Church Home, at a cost of \$100,000, and presented it to the Episcopal Church at Louisville.

Mott, Alexander Brown, surgeon, born in New York city, March 21, 1826; died in Yonkers, N. Y., Aug. 12, 1889. He was the fourth son of Dr. Valentine Mott, acquired a classical education in Europe, studied medicine with his father and in the University Medical College, and was graduated at the Vermont Academy of Medicine in 1850. In 1853 he was appointed visiting surgeon at St. Vincent's Hospital, in 1855-'63 was attending surgeon at the Hebrew Hospital, in 1857 took the degree of M. D. at the medical depart-

ment of the University of Pennsylvania, and in 1859 became surgeon at Bellevue Hospital. He was also surgeon at the Charity Hospital for fourteen years, and consulting surgeon to the Bureau of Medical and Surgical Relief to the Outdoor Poor. At the beginning of the civil war he was appointed medical director at New York, and aided in establishing the United States General Hospital. On Nov. 7, 1862, while surgeon in charge of this hospital, he was commissioned surgeon of United States volunteers, with the rank of major; in 1864 was appointed medical inspector of the Department of Virginia, and on July 27, 1865, was mustered out of the service, with the brevet rank of colonel. Dr. Mott aided in founding St. Vincent's Hospital in 1849 and Bellevue Medical College in 1861, was Professor of Surgical Anatomy in the latter from 1861 till 1872, and of Chemical and Operative Surgery from 1872 till his death; and performed many operations that excited interest in the surgical world.

Myers, Abraham C., soldier, born in South Carolina, about 1812; died in Washington, D. C., June 20, 1889. He was graduated at the United States Military Academy in 1833, entered the army as brevet second lieutenant in the Fourth United States Infantry, was promoted captain and assistant quartermaster Nov. 21, 1839, served in the Seminole War and in the Mexican War, was brevetted major for gallantry in the battles of Palo Alto and Resaca de la Palma, and lieutenant-colonel Aug. 20, 1847, for services in the Battle of Churubusco. After the secession of his native State he resigned, and was appointed quartermaster-general of the Confederate army.

Neal, John Randolph, lawyer, born in Anderson County, Tenn.; died in Rhea Springs, Tenn., March 26, 1889. He was graduated at Emory and Henry College, Virginia, in 1858, was admitted to the bar in 1860, entered the Confederate army as a private, and was promoted to lieutenant-colonel of the Sixteenth Battalion of Tennessee Cavalry. In 1874 he was elected to the Tennessee Assembly, in 1878 a State Senator, in 1879 President of the Senate, and in 1880 a Democratic presidential elector. He was elected to Congress from the Third Tennessee District in 1886 and 1888 as a Democrat.

Needham, Elias Parkman, manufacturer, born in Delhi, N. Y., 1813; died in New York city, Nov. 28, 1889. While working as a journeymau carpenter in Buffalo, N. Y., he became intimate with Jeremiah Carhart, a fellow-workman, who had invented mechanical devices, and, being impressed with the action of a suction bellows and set of reeds that Carhart had invented as improvements on the then popular melodeons, he induced Carhart to join him in establishing a melodeon manufactory. They began making the instruments in Buffalo in 1846, and in two years their business was so large that they removed to New York city, and began manufacturing on a larger scale. Mr. Needham was constantly experimenting to improve the melodeon, and while so doing conceived the idea of altering the form and arrangement of the instrument to produce a substitute for the pipe organ. These experiments resulted in the "silver-tongue" reed, or parlor organ. In 1878 he received fifteen patents, covering the idea of using strips of perforated paper for producing automatic music from small reed organs, under which thousands of organs have been manufactured.

Nixon, John Thompson, lawyer, born in Fairton, Cumberland County, N. J., Aug. 31, 1820; died in Stockbridge, Mass., Sept. 28, 1889. He was graduated at Princeton in 1841, studied law, and was admitted to the bar in Virginia in 1845. On the death of Judge Pennypacker, with whom he had formed a partnership, he returned to New Jersey and established himself at Bridgeton. In 1849 and 1850 he was elected to the State Assembly, and in his second term was its Speaker. He was elected to Congress as a Republican in 1858 and 1860, and rendered effective service on the Committee on Commerce. In 1870 he was appointed Judge of the United States District

Court for New Jersey, an office he retained till his death. He was author of "Nixon's Digest of the Laws of New Jersey" and "Forms of Proceedings under the Laws of New Jersey."

Norton, George W., banker, born near Russellville, Ky., in 1815; died in Louisville, Ky., July 18, 1889. He was educated for the banking business, established the Southern Bank in Russellville in 1850, and removing to Louisville in 1866 founded the banking house of G. W. Norton & Co. He was exceptionally successful in his operations, gave \$50,000 to the Baptist Southern Theological School, and at his death was regarded as the richest man in the State.

Nutting, Newton W., lawyer, born in West Monroe, Oswego County, N. Y., Oct. 22, 1840; died in Oswego, N. Y., Oct. 15, 1889. He was admitted to the bar in Syracuse, N. Y.; was district attorney of Oswego County from Jan. 1, 1869, till Jan. 1, 1872, and county judge from Jan. 1, 1878, till March 4, 1883; and was elected to Congress from the 27th New York District as a Republican in 1884, 1886, and 1888.

O'Connor, William Douglas, author, born of English and Irish parents in Boston, Mass., Jan. 2, 1832; died in Washington, D. C., May 9, 1889. When a child he read books that were far beyond his years, and he early manifested a passion for art, and for two years studied painting. He also wrote poems, some of which were published anonymously. Among these were "The Shadow on the Wall," "Mabel," "To Athos," "The Lost Land," "Resurgemus," and "Earl Mord." He was an associate editor of the Boston "Commonwealth" and the "Mercantile Library Reporter," and from 1854 to 1860 he edited the Philadelphia "Saturday Evening Post." In 1861 he was appointed corresponding clerk of the Light-House

Board in Washington, of which, in 1873, he became chief clerk. In 1874 he was made librarian of the Treasury Department, and in 1878 Assistant General Superintendent of the Life-Saving Service, for which thereafter he wrote the annual reports. In these reports he frequently inserted graphic descriptions and picturesque details of the service which he had assisted in reorganizing,



and to which he enthusiastically devoted his energies. Mr. O'Connor was a social Democrat of the purest type, and politically a radical of the broadest kind, though never a voter. His reading was remarkably wide, and with keen reasoning powers he had a wonderful memory for quotations and allusions. Moreover, he never failed in the courage of his convictions. He was one of the first to appreciate the poetry of Walt Whitman, for whom he had a strong personal friendship and a profound admiration, and he was a firm believer in the theory that Shakespeare's plays were written by Francis Bacon. His publications in book form were "Harrington," a powerful antislavery romance (anonymous, Boston, 1860); "The Good Gray Poet," a vindication of Whitman's poetry (New York, 1866; reprinted, with a long introduction, in Richard M. Bucke's life of Whitman, 1883); "Hamlet's Note-Book," a reply to Richard Grant White on the main points of the Bacon-Shakespeare controversy (Boston, 1886); and "Mr. Donnelly's Reviewers," a reply to those who derided Ignatius Donnelly's "Great Cryptogram" (Chicago, 1889). His finest imagina-

tive work is in his short stories, two or three of which have been republished in small volumes or in collections. These are: "The Sword of Manley" (Harper's, 1854); "Loss and Gain" (Harper's, December, 1854); "The Knocker" (Harper's, December, 1855); "What Cheer?" (Putnam's, July, 1855); "The Ghost" (Putnam's, January, 1856); and "The Carpenter" (Putnam's, January, 1863). Most of these are Christmas stories. "The Brazen Android," written for the "Atlantic Monthly" was withdrawn after it was partly in type. His longest poem, "To Fanny," appeared in the "Atlantic." No collection of his poems or stories has as yet been published. Mr. O'Connor married, in 1856, Miss Ellen M. Tarr, of Boston, who survives him.

Olin, Milo, philanthropist, born probably in New York; died in Atlanta, Ga., Sept. 14, 1889. He settled in Augusta about 1839, practiced law, became clerk of the Supreme Court, and was a magistrate for many years previous to his death. He led a life of extreme seclusion; but he was known through the South as the "yellow-fever nurse," and possessed great skill as a physician. It is said that no epidemic has occurred in the South in forty years that he did not immediately leave his home for the scene of danger. He sought the worst cases, and acted as physician and nurse, but would never accept reward from any source. Though co-operating with organized relief societies, he followed his own course of treatment; and whenever the scourge ceased he would quietly slip away to his home, and afterward refuse to give any information concerning his experience.

Paine, Ira, marksman, born in Hebronville, Mass., Feb. 17, 1837; died in Paris, France, Sept. 10, 1889. He received a public-school education, and, possessing a rich tenor voice, became a professional singer at an early age. In 1872 he began his career as a marksman, and invented glass balls, feather-filled balls, ball-throwing traps, and other appliances to enable him to exhibit his skill without using live pigeons. Having won distinction and the title of champion pistol and rifle shot of the United States, he went to Europe in 1881, and spent five years in shooting contests with crack shots. In 1882 Gen. von Karneke, the German Minister of War, pronounced him to be the most wonderful shot the world had ever seen, and the late King Luis, of Portugal, knighted and decorated him. In 1884 he hit a 5-inch target fifty times in succession with a Colt's army revolver at the London revolver trials, and in 1885 he won the pistol match with Joseph Schulthoff, at Vienna, at 40, 120, and 325 yards, doubling his opponent's points. His shooting was characterized by a remarkable swiftness in handling his weapon, and he had defeated all the crack shots of the world, including those of the British and German armies.

Patterson, Thomas H., naval officer, born in New Orleans, La., in May, 1820; died in Washington, D. C., April 9, 1889. He was appointed a midshipman in the United States navy April 5, 1836; was promoted passed midshipman July 1, 1842; master, Oct. 31, 1848; lieutenant, June 23, 1849; commander, July 16, 1862; captain, July 25, 1866; commodore, Nov. 2, 1871; rear-admiral, March 28, 1877; and was retired May 10, 1882. During his service in the navy he had been on sea duty twenty-two years and ten months; on shore or other duty, twenty years and one month; and was unemployed nine years and ten months. He commanded the steamer "Choeura" in Hampton Roads, Va., in 1862, took part in the siege of Yorktown, cleared the Pamunkey river for Gen. McClellan's army, and co-operated with the Army of the Potomac in its early movements. While on blockading duty off the coasts of the Carolinas, he cut out the steamer "Kate" from under the Confederate batteries at New Inlet, aiding in capturing a flying battery near Fort Fisher, and captured the "Cornubia" and "Robert E. Lee," laden with guns and military stores for the Confederates. He was in command of the Washington Navy Yard in 1876-'77, and of the Asiatic Squadron in 1880-'82.

Patton, William Weston, clergyman, born in New York city, Oct. 19, 1821; died in Westfield, N. J., Dec. 31, 1889. He was graduated at the University of the City of New York in 1839, and at Union Theological Seminary in 1842. In 1843 he was pastor of Phillips Congregational Church in Boston; in 1846, of the Fourth Church in Hartford; in 1857, of the First Church in Chicago, where he remained till 1866; was editor of the "Advance" in Chicago in 1867-'72; lecturer on modern skepticism in the Congregational Theological Seminars in Oberlin and Chicago in 1874-'77; and was President of Howard University in Washington, D. C., from 1877 till a few days before his death, when he resigned. He was Vice-President of the Northwestern Sanitary Commission during the civil war. His publications include: "The Young Man" (Hartford, 1847); "Conscience and Law" (New York, 1850); "Slavery and Infidelity" (Cincinnati, 1856); "Spiritual Victory" (Boston, 1874); and "Prayer and its Remarkable Answers" (Chicago, 1875; 20th ed., New York, 1885).

Peatfield, James, inventor, born in Nottingham, England, April 17, 1803; died in Ipswich, Mass., Oct. 21, 1889. He came to the United States in 1827, and found employment in a lace factory in Ipswich, of which he subsequently became superintendent. He soon began making improvements in the English modes of manufacturing, patented the first lace machine made in the United States, and, when the lace industry began to fall off, turned his attention to the manufacture of woolen goods, and invented and built the first warp machine in the country. In 1842, with his brother Sandford, he erected a brick woolen mill in Ipswich, and continued active in business till 1877, when he retired and devoted the remainder of his life to horticulture and pomology.

Pendleton, George Hunt, statesman, born in Cincinnati, Ohio, July 25, 1825; died in Brussels, Belgium, Nov. 24, 1889. He received an academical education in Cincinnati, which was supplemented by a



course at Heidelberg. He spent 1844-'47 in foreign study and observation, and visited France, Belgium, Austria, England, Italy, Switzerland, Greece, Egypt, and Asia Minor. He was admitted to the bar, and began practicing in Cincinnati in partnership with George E. Pugh. In 1853 he was elected to the Ohio Senate, in which he served one term, receiving a nomination

for Congress before its expiration. In the election the entire Democratic ticket was defeated by the Know-Nothing party. In 1856 he was again a candidate and was elected, and held his seat by re-elections till March 4, 1865. In the presidential election of 1860 he favored Stephen A. Douglas, and afterward believed that the war could be averted, and was ready to advocate a compromise; but when other counsels prevailed, he changed from a peace to a war Democrat, and insisted that if war could not be avoided it should be prosecuted with all vigor. He served on the committees on Military Affairs, the Judiciary, and Ways and Means. In 1864 he received the Democratic nomination for Vice-President on the ticket headed by Gen. McClellan. Two years later he was a member of the Loyalists' convention in Philadelphia. In 1869 he was defeated for Governor of Ohio by Gen. Rutherford B. Hayes, and was elected President of the Kentucky Central Railroad. He then applied himself to his law and railroad interests till

1877, when he was elected United States Senator. He distinguished himself in the Senate by preparing, introducing, and pushing to success the Civil-Service Reform bill. In 1884 he was defeated as candidate for re-election, and on March 23, 1885, he was appointed United States minister to Germany, where he served till the summer of 1889.

Perry, Edward Aylesworth, lawyer, born in Richmond, Mass., March 15, 1833; died in Kerrville, Texas, Oct. 15, 1889. He was a member of the class of 1854 of Yale College, but left before graduating, and removed to Alabama, where he studied law. He was admitted to the bar in 1857, settled in Pensacola, Fla., and practiced till the beginning of the civil war. In 1861 he aided in raising a regiment for the Confederate army, became its colonel, and commanded it in the battles around Richmond. He was wounded at Fraser's farm and in the Wilderness, and commanded a brigade in the Army of Northern Virginia, that lost more men at Gettysburg than any other on the Confederate side. After the war he practiced law in Pensacola till 1885, where he was elected Governor of Florida for the term ending Dec. 31, 1888.

Phillips, George S., author, born in Peterborough, England, in January, 1816; died in Morristown, N. J., Jan. 14, 1889. He was graduated at Cambridge, came to the United States and engaged in journalism in New York, returned to England about 1845, became editor of the Leeds "Times," and in 1846 principal of the People's College at Huddersfield, Yorkshire, and subsequently came again to the United States. He was associated with Charles A. Dana in the editorship of the Chicago "Republican" and was literary editor of the New York "Sun" for several years. In 1873 his mind became impaired and he was placed in the State Asylum at Trenton, N. J., and in 1876 was removed to the asylum at Morristown. He wrote much under the pen name of "January Searle." His published works include "The Life, Character, and Genius of Ebenezer Elliott" (1850); "Country Sketch-Book of Pastoral Scenes" (1851); "Memoirs of William Wordsworth"; "Life at Home and abroad"; "Sherwood Forest"; and "The Gypsies of the Dane's Dyke, a story of Hedgeside Life in England in 1855."

Phillips, Isaac, lawyer, born in New York city, June 16, 1812; died there, Aug. 5, 1889. He engaged in the cutlery business in Philadelphia and New York, and in 1839 became associated with Major M. M. Noah in the editorship of the "Union," and subsequently of the "Courier-Inquirer." In 1842 he was appointed a clerk in the custom house, was afterward promoted to be customs examiner, and in 1853 was appointed surveyor of the port of New York, which place he held till 1869, although a strong Democrat. He declined a reappointment tendered by President Grant, was admitted to the bar in 1870, and subsequently practiced with large success, making a specialty of United States customs and revenue laws. Mr. Phillips was a delegate to the National Democratic Conventions in 1844 and 1848, and a member of the New York Chamber of Commerce for 31 years.

Pieroe, Bradford, clergyman, born in Royalton, Vt., in 1812; died in Newton, Mass., April 19, 1889. He was graduated at Wesleyan University in 1841 immediately entered the University of the Methodist Episcopal Church, was editor of the "Sunday-School Messenger" in 1844-'45, agent of the American Sunday-School Union in 1845-'56, superintendent and chaplain of the Massachusetts Industrial School at Lancaster in 1856-'62, chaplain of the House of Refuge on Randall's Island, N. Y., in 1863-'72, editor of "Zion's Herald" 1872-'88, and afterward superintendent of the Newton Free Library. He was a State Senator in 1855-'56. While holding his various offices he filled several pastorates and published religious works.

Pile, William A., clergyman, born near Indianapolis, Ind., Feb. 11, 1829; died in Monrovia, Cal., July 7, 1889. He received an academic education, studied theology, was ordained a clergyman of the Methodist Episcopal Church, and was a member of the Missouri Conference. In 1861 he was appointed chaplain of a

Missouri regiment in the national army, in 1862 was appointed captain of a light battery and soon afterward was promoted colonel of infantry, in 1863 was promoted brigadier-general, and served till the close of the war. He was at Corinth, Vicksburg, and Mobile, and broke the Confederate line at Fort Blakely. In 1866 he was elected to Congress from the First Missouri District as a Republican, and was chairman of the committee on expenditures in the post-office department and member of the committees on Union prisoners and on military affairs. In 1868 he was defeated for re-election, in 1869 was appointed Governor of New Mexico, and was United States minister to Venezuela from 1871 till 1874.

Potter, Edward Elmer, soldier, born in New York city, June 23, 1823; died there, June 1, 1889. He was graduated at Columbia College and studied law, but engaged in farming. At the beginning of the civil war he entered the army as captain and commissary of subsistence, subsequently recruited a regiment of North Carolina volunteers for the national service, of which he was appointed colonel, and for distinguished services and bravery in the campaigns in the Carolinas and eastern Tennessee, was promoted brigadier-general of volunteers Nov. 20, 1862, and brevetted major-general March 13, 1865. He resigned from the army in July, 1865.

Rathbone, Justus Henry, philanthropist, born in Deerfield, Oneida County, N. Y., Oct. 29, 1839; died in Lima, Ohio, Dec. 9, 1889. He received a good education, and became a school-teacher and a clerk in the Government hospital and War Department services. In 1858-'59, while teaching in Eagle Harbor, Mich., he read John Banim's play of "Damon and Pythias," and conceived the idea of founding a secret benevolent order, based on the remarkable friendship of the two Syracuse youth. He prepared the ritual so far as to cover the first three degrees or ranks, and then laid the work aside to enter the hospital service at the beginning of the civil war. On Feb. 15, 1864, while on duty in Washington, he submitted his draft of the ritual to some fellow-clerks, who approved his idea, and on the 19th they organized Washington Lodge, No. 1, of the order of Knights of Pythias. Recognizing him as the founder of the order, the members advanced him through all its offices, and after he had filled that of supreme chancellor, the highest of all, he sought retirement from work in the order. In 1887 he was induced to resign his clerkship in the War Department, and accept the office of supreme lecturer in the order, which he held at the time of his death.

Rawle, William Henry, lawyer, born in Philadelphia, Pa., Aug. 31, 1823; died there, April 19, 1889. He was graduated at the University of Pennsylvania in 1841, studied law, and was admitted to the bar in 1844. During the civil war he enlisted in the national army twice for urgent service in the State. In 1865 he became vice-provost of the Law Academy, and held the office till 1873, and from 1880 till his death was vice-chancellor of the Law Association. He was author of numerous law publications, including "Law of Covenants for Title" (Philadelphia, 1852); "Equity in Pennsylvania" (1868); "Some Contrasts in the Growth of Pennsylvania in English Law" (1881); and an address "The Case of the Educated Unemployed" (1885).

Reavis, Logan Uriah, author, born in Sangamon Bottom, Mason County, Ill., March 26, 1831; died in St. Louis, Mo., April 25, 1889. He received a common-school education, taught for four years, acquired an interest in the "Gazette" of Beardstown, Ill., changed its name to "The Central Illinoian," and with a brief interruption published it till 1866. He then settled in St. Louis and began advocating the removal of the national capital to that city. His publications and lectures created for him the sobriquet of "the capital mover." His faith in the speedy development of the West and his belief that St. Louis was destined to become the metropolis of the country were intense, and induced him to make two lecturing

tours of England to promote these schemes. His published works include: "The New Republic, or the Transition Complete, with an Approaching Change of National Empire, based upon the Commercial and Industrial Expansion of the Great West" (St. Louis, 1867); "St. Louis, the Future Great City of the World" (1867); "A Change of National Empire, or Arguments for the Removal of the National Capital from Washington to the Mississippi Valley" (1869); "A Representative Life of Horace Greeley, with an Introduction by Cassius M. Clay" (New York, 1872); "Thoughts for Young Men and Women of America" (1873); "Life of Gen. William S. Harney" (St. Louis, 1875); and "Railway and River Systems" (1879).

Reinke, Amadeus Abraham, clergyman, born in Lancaster, Pa., March 11, 1822; died in Herrnhut, Germany, Aug. 12, 1889. He was a son of the Rev. Samuel Reinke, D.D., bishop of the Moravian Church in the United States, was graduated at the Moravian Theological Seminary at Bethlehem, Pa., was appointed missionary to Jamaica in 1844, and afterward held pastorates in Salem, N. C., Graceham, Md., New Dorp, Staten Island, Philadelphia, and New York city, serving in the latter from 1865 till shortly before his death. He was a delegate to the General Moravian Synod of the World in Germany in 1869, was elected bishop at the synod in York, Pa., in 1870, was president of the synod in Bethlehem, Pa., in October, 1888, and was chosen by it a member of the provincial executive committee and delegate to the General Moravian Synod of the World held in Herrnhut in 1889.

Reno, Marcus A., soldier, born in Illinois, about 1835; died in Washington, D. C., March 31, 1889. He was graduated at the United States Military Academy in 1857, and was appointed brevet second lieutenant in the First Dragoons. In the permanent establishment he was promoted second lieutenant, June 14, 1858; first lieutenant, April 25, 1861; captain First United States Cavalry, Nov. 12, 1861; and major Seventh United States Cavalry, Dec. 26, 1868; was brevetted major for gallantry at Kelly's Ford, Va., March 17, 1863; lieutenant-colonel for Cedar Creek, Va., Oct. 19, 1864; colonel United States army and brigadier-general United States Volunteers for meritorious services during the war, March 13, 1865; and was dismissed the service April 1, 1880. In the volunteer service he was appointed colonel of the Twelfth Pennsylvania Cavalry, Jan. 1, 1865, and was mustered out on July 20. In 1876 he took part in the campaign against the Sioux Indians under Sitting Bull, as second in command of his regiment, of which George A. Custer was colonel, and it was charged that in the action on the Little Big Horn, where Gen. Custer and nearly all his regiment were killed, Reno failed to support his comrades and escaped through cowardice. For this he was dismissed the service, though other serious charges had been made against him.

Rice, Charles Allen Thorndike, editor, born in Boston, Mass., June 18, 1851; died in New York city, May 16, 1889. His mother decided to educate him abroad, but the vessel on which they embarked was wrecked the first night out. Taking to the boats, they gained the shore; but, fearing the violence of the crew, Mrs. Rice separated herself from the survivors, and fled with her child into the woods. A second attempt to reach the Old World proved more fortunate, and they settled in Germany. There Mrs. Rice married Prof. Koffler, a distinguished scholar of Darmstadt, who supervised his step-son's education, and to his efforts the boy's familiarity with the modern languages was largely due. In 1870 he entered Christ Church, Oxford. Finding his German training of some disadvantage, he set himself energetically to work to master the difficulties, and took his B. A. and M. A. degrees in the shortest time the rules of the university permitted. While at Oxford he frequently went to Paris, where he had many relatives, and during one of these visits he heard the proclamation of the third French republic from the steps of the Hôtel de Ville. He was also among the first to enter Paris after the overthrow of

the Commune. On finishing his course at Oxford, he returned to the United States and studied law at the Columbia Law School, New York. His early impres-



sions were always very strong, and one of them, no doubt, contributed largely to his success. "When I was a child," he frequently said, "my mother used to place me on a chair, and make me repeat 'No, no, no.' It is the hardest word to learn—that little word no." He had inherited a large fortune, and, realizing that journalism offered the most congenial field for carrying out his objects in life, he seized, in 1876, an opportunity of purchasing the "North American Review," determining to make it the mouth-piece of both sides of every question. "Give me men of action," was a favorite expression of Mr. Rice's. He consequently believed that the leader in any movement, the originator of anything new in science, or the person distinguished by his deeds, was the best exponent of his views or acts, even though lacking in skill to express them in the choicest literary style; and his sagacity was proved when the "Review" quickly resumed its lead of all similar periodicals in the country. When the labor troubles arose in Pittsburg, in 1877, he went thither to study the question. He wished to obtain from Thomas Scott, President of the Pennsylvania Railroad, an explanation of the situation, and Mr. Scott promised to write the article. But the riots compelled him to decline at the last moment. Mr. Rice gained access to Mr. Scott in his private car, and, in spite of his remonstrances and objections, took down with his own hand that gentleman's views on the state of affairs while the station in which the car stood was burning. Inspired by the works of John L. Stephens on the buried cities of Central America, Mr. Rice resolved to perfect the task of unearthing the antiquities of those countries. He enlisted the sympathies of a New York merchant, and the result was that an expedition, under the lead of M. Charnay, was sent to Central America in 1880 at the joint expense of the French Government and Pierre Lorillard. Mr. Rice was made an officer of the Legion of Honor for his successful management of this undertaking, and he wrote the introduction to the American edition of M. Charnay's account of his exploration. In the spring of 1884 Mr. Rice founded "Le Matin" in Paris. His object was to supply the French people with a daily paper on the American plan. "I have tried that principle," said an experienced French editor; "indeed, I went into it thoroughly, spending no less, some weeks, than three thousand francs for news alone. I found the real Parisian was more interested in the horse that slipped opposite the Théâtre Français than in the news of the universe." Nevertheless, Mr. Rice persevered, and the paper was established on a firm footing. On returning to America he established a press syndicate, earnestly advocated a new copyright law, and in 1885 edited

the "Reminiscences of Abraham Lincoln." In the autumn of 1886 he was nominated for Congress, and the nomination was adopted by the Labor party. He lost his election by treachery, and this defeat opened his eyes to the defects of the present system. Thereupon, he drafted a ballot-reform bill, of which Senator Saxton, in the "North American Review," thus speaks: "My first inspiration in this line was drawn from his efforts and the draft of the bill made by him and published in the New York papers two or three years ago." In a series of articles, he had previously disclosed the lamentable condition of affairs in Delaware, where dead men, it was claimed, had long figured as voters, and in acknowledgment of his services he was earnestly besought to move into that State and to take a place in the approaching contest for the senatorship. Though never a bitter partisan, he was always an enthusiastic Republican, and in 1888 the office of Aqueduct Commissioner was offered to him in New York; next in 1888 the Republican nomination for Mayor was tendered him, and, with the return of his party to national power, he was appointed minister to Russia, being the youngest man that ever received a first-class mission, with the exception of Mr. Adams. Mr. Rice's wide sympathies gained for him a large circle of friends, and these were not confined to one country or to any particular class. Gladstone is said to have observed of him that he was the most fascinating young man he had ever met. Victor Hugo entertained him frequently at his house, as did Prince Napoleon. With Robert Browning he was intimate; while in his own country there was scarcely a person prominent in politics, literature, or art with whom he was not on friendly terms. His generosity was proverbial, and his purse was always open to the needy.

Rice, Edmund, lawyer, born in Waitsfield, Vt., Feb. 14, 1819; died in White Bear, Minn., July 11, 1889. He received a common-school education, removed to Kalamazoo, Mich., in 1838, studied law and was admitted to the bar, was appointed register of the Court of Chancery in 1841, and subsequently master in chancery and clerk of the Supreme Court. He served through the Mexican War, and practiced law in St. Paul, Minn., from 1849 till 1855. He was President of the Minnesota and Pacific Railroad Company in 1857-'63, of the St. Paul and Pacific in 1863-'72, and trustee till 1879, and of the St. Paul and Chicago in 1863-'77; was a member of the Territorial Legislature in 1851, of the State Senate in 1864-'66 and 1874-'76, and of the State Assembly in 1867, 1872, 1877 and 1878; was Mayor of St. Paul in 1881-'83 and 1885-'87; and was elected to Congress from the Fourth Minnesota District as a Democrat in 1886.

Ricord, Philippe, physician, born in Baltimore, Md., Oct. 10, 1800; died in Paris, France, Oct. 22, 1889. He began studying medicine in Philadelphia, and in 1820 went to Paris, where he received his degree in 1826. He practiced two years in Olivet, near Orléans, and on returning to Paris in 1831 delivered lectures on surgery, which secured his appointment as surgeon-in-chief of the "Hôpital des Vénériens du Midi." He occupied this office continuously till 1860, when he resigned and resumed private practice as a specialist. Two years later he was appointed physician in ordinary to Prince Napoleon, and having attended Napoleon III during a severe illness, he became consulting surgeon to the Emperor in 1869. He was appointed commander of the Legion of Honor in 1860, and for his services as chief of the French ambulance corps during the Franco-German War and in the Siege of Paris was promoted to be a grand officer in 1871. Dr. Ricord was author of medical and surgical works, and invented several surgical instruments that were "crowned" by the French Academy.

Riker, James, historian, born in New York city, May 11, 1822; died in Waverly, N. Y., July 15, 1889. He was educated for the ministry, but failing health prevented him from following it, and from 1849 till 1857 he was principal of the public school in Harlem, N. Y. In 1858 he became connected with the American Home

Missionary Society, and served it till 1864, when he received an appointment in the United States Revenue Service, which he held three years. In 1869 he removed to Waverly, and in 1885 established a library there, of which he was appointed librarian. His published works include: "A Brief History of the Riker Family" (New York, 1851); "The Annals of Newtown" (1852); "Harlem: its Origin and Early Annals" (1881); and "The Indian History of Tioga County" (Syracuse, 1888). At the time of his death he had in preparation "A Dictionary of the First Settlers of New Netherland prior to the Year 1700."

Rollins, Edward Henry, legislator, born in Somersworth (now Rollinford), Strafford County, N. H., Oct. 3, 1824; died in the Isles of Shoals, N. H., July 31, 1889. He received an academic education, was for some time a teacher, and engaged in mercantile pursuits. He was a member of the New Hampshire House of Representatives in 1855, 1856 and 1857, and Speaker the two last years, was chairman of the Republican State Committee at its organization and for many years thereafter. During this service with the Republican State Committee, he made annually a severely accurate political canvass of the State by school districts. Infusing his hundreds of correspondents with his own force and energy, he did this so correctly that it became his custom to announce a few days before voting what the result of an election would be. One year his canvass came within fewer than a hundred votes of the declared result, in a State with 70,000 voters. His methods attracted much notice, and were adopted in other States. He was chairman of the State delegation to the National Republican Convention in 1860, and was Representative in Congress from July 4, 1861, till March 4, 1867, serving as chairman of the committees on Accounts and on Public Expenditures. In 1869 he was elected secretary of the Union Pacific Railroad Company, and in 1871 its treasurer, and in March, 1877, was elected United States Senator for the term ending March 4, 1883. While he was in the Senate he was chairman of the Committee on Manufactures, and member of the committees to audit and control the contingent expenses of the Senate on naval affairs, and on civil service and retrenchment, and of the joint committees on enrolled bills and on public buildings and grounds. His energetic and watchful ways made him a very useful man at Washington, as it was his habit to look sharply after details that are often neglected.

Rowe, George Fawcett, actor, born in Exeter, England, in 1836; died in New York city, Aug. 29, 1889. He began his career as a scenic painter in London theatres, but in 1852 he went to the gold fields of Australia, where he soon tired of mining life, and sought employment in painting and acting in several of the large cities. He subsequently settled in Melbourne, and for eight years managed the principal theatre there, extending a hearty welcome to American actors, including Joseph Jefferson, John Drew, and Avonia Jones. While there he wrote, adapted, and translated nearly fifty plays. On leaving Melbourne he went to China and South America, and in 1865 made his first appearance in the United States at the Olympic Theatre, New York, as D'Artagnan in the "Three Guardsmen." At the close of the season he returned to England, and soon afterward appeared in London as Wilkins Micawber, a character with which he greatly increased his popularity. Returning to the United States, he produced his original "Geneva Cross," the American drama "Fifth Avenue," and the comedy "Brass," and was afterward engaged in dramatic writing, acting, and managing, occasionally making professional trips abroad, and spending several summers in Alpine loitering.

Saltus, Francis S., author, born in New York city in 1849; died in Tarrytown, N. Y., June 24, 1889. He was educated at Columbia College, spent many years in Europe, made himself master of ten different languages, contributed to magazines and newspapers a large number of sketches and poems in English, French, German, and Italian, both under his own

name and his pen-name "Cupid Jones," and was an accomplished musician. He published four comic operas, a comic history of the United States, and "Honey and Gall," a volume of poems (Philadelphia, 1873). At his death he left the completed manuscripts of "The Witch of Endor" and fifty long poems on Biblical subjects, "Flask and Flagon," "Poems of Places," "Pastels and Profiles," "Flower and Thorn," "Flesh and Spirit," "Moods of Madness," an unnamed volume of French poetry, and two volumes of humorous poetry; and in prose "A Life of Donizetti," "A Life of Rossini," "Kings of Song," "Great Baritones," "Romance of the Opera," monographs on Bellini and Mercadante, a musical dictionary, and over one thousand musical sketches. He also left similarly comic histories of France, Greece, Germany, England, and Rome, a comic "Robinson Crusoe," and a large number of comic sketches.

Schmidt, Henry Immanuel, clergyman, born in Nazareth, Pa., Dec. 21, 1806; died in New York city, Feb. 11, 1889. He received his preparatory training in the Moravian academy in his native place, and in 1829 was licensed as a Lutheran clergyman, with which Church he was connected during the remainder of his life. He was successively pastor in Bergen County, N. J., in 1831-'33; assistant professor in Hartwick Seminary, New York, in 1833-'36; pastor in Boston, Mass., in 1836-'38; Professor of German and French in Pennsylvania College, Gettysburg, Pa., in 1838-'39, and of German in the theological seminary there in 1839-'43; pastor at Palatine, N. J., in 1843-'45; Principal of Hartwick Seminary, New York, in 1845-'48; and Professor of German Language and Literature in Columbia College, New York, in 1848-'80. On Nov. 1, 1880, he was retired as professor emeritus. He published "History of Education" (1842); "Scriptural Character of the Lutheran Doctrine of the Lord's Supper" (1852); and "Course of Ancient Geography" (1860).

Schoonmaker, Cornelius Marinus, naval officer, born in Kingston, N. Y., Feb. 2, 1839; died off Apia, Samoa, March 15, 1889. He was graduated at the United States Naval Academy in 1859; promoted passed midshipman, Jan. 19, 1861; master, Feb. 23, 1861; lieutenant, Aug. 31, 1861; lieutenant-commander, Dec. 24, 1865; commander, Feb. 14, 1873; and captain, Oct. 7, 1886; and was appointed to command the United States steamship "Vandalia," April 5, 1888. During his service in the navy he had been on sea duty sixteen years; on shore or other duty thirteen years and five months; and was unemployed five years and ten months. He served on the gunboat "Sagamore" in 1861-'62, and on the "Octorara," of the Western Gulf squadron in 1863-'64; took part in the passage of the forts in Mobile Bay, in the encounter with the Confederate iron-clad "Tennessee," and in the capture of Forts Morgan and Gaines; was navigator of the "Junata" in 1864, and of the steam frigate "Piscataqua" in 1867-'69; commanded the "Frolic" in 1872-'74, and brought home from St. John's the survivors of the crew of the wrecked Arctic exploring vessel "Polaris"; and commanded the "Nipsic" in 1879-'81. On April 5, 1888, he was appointed to command the "Vandalia" on a three years' cruise, but at the outbreak of the troubles on and about the Samoan Islands, he was ordered to that station. He reached Apia on Feb. 23, 1889, and in the great hurricane of March 15 both his vessel and the "Trenton" were wrecked, and he, three officers, and thirty-nine of the crew of the "Vandalia" lost their lives.

Scott, John, lawyer, born in Huntingdon County, Pa., July 14, 1824; died in Pittsburg, Pa., March 22, 1889. He received a common-school education; was admitted to the bar in 1846; was prosecuting attorney of his county in 1846-'49; served on the Board of Revenue Commissioners in 1851; was elected a member of the Legislature as a war Democrat in 1861; was President of the Republican State Convention in 1867; and was elected United States Senator as a Republican, Jan. 19, 1869. In the Senate he was chairman of the Committee on Claims. He

was formerly President of the Pittsburg, Virginia, and Charlestown Railroad Company, a director of the Pennsylvania Railroad Company, a founder of the Edgar Thomson Steel Company, and, at the time of his death, President and one of the receivers of the Alleghany Valley Railroad Company.

Shepard, Charles Augustus Billings, publisher, born in Salem, Mass., Oct. 18, 1829; died in Boston, Mass., Jan. 25, 1889. He received a public-school education, entered the book store of John P. Jewett in Salem, accompanied his employer to Boston in 1846, and established himself in the publishing business there in 1855. In the panic of 1857 he was forced to suspend, but in 1862 he reappeared as a publisher in conjunction with William Lee, with whom he established the firm of Lee and Shepard. In 1872 the firm lost heavily by the great fire in Boston, but survived the catastrophe, built new quarters in 1873 and 1885, and opened a branch store in New York. Among the works published by the firm were those of William T. Adams, Rebecca S. Clarke, Amanda Douglas, Prof. James De Mille, John T. Trowbridge, David R. Locke, T. W. Higginson, P. B. Shillaber, George M. Baker, and the Rev. Elijah Kellogg.

Singleton, Otho R., lawyer, born in Jessamine County, Ky., Oct. 14, 1814, died in Washington, D. C., Jan. 11, 1889. He was graduated at St. Joseph's College, Bardstown, Ky., and at the Lexington Law School, removed to Mississippi in 1838, served two years in the State Assembly and six years in the State Senate, was a Democratic presidential elector in 1852, was elected to Congress in 1852-'56 and 1858, and withdrew Jan. 12, 1861, to join the Confederacy. From 1861 till 1865 he was a member of the Confederate Congress, and from 1874 till March 4, 1887, Representative in the United States Congress from the Fifth Mississippi District.

Smith, William Nathan Harrell, lawyer, born in Murfreesborough, N. C., Sept. 14, 1812; died in Raleigh, N. C., Nov. 14, 1889. He was graduated at Yale College in 1834, and was admitted to the bar in North Carolina in 1840. In the latter year he served in the Lower House of the Legislature, and in 1848 became a State Senator and solicitor for the First Judicial District. He held the office of solicitor for sixteen years, and was elected to Congress in 1859. During the memorable contest for the speakership in which William Pennington, of New Jersey, gained the office, Judge Smith was supported as opposition candidate by the majority of the Southern Representatives. He served in the Confederate Congress in 1861-'65. In the impeachment of Gov. Holden, he was the leading counsel for the defense. He was appointed Chief Justice of the Supreme Court of North Carolina to fill a vacancy in 1878, and had since served by-elections.

Staunton, Emily Ingham, educator, born in Saybrook, Conn., in 1811; died in Oil City, Pa., Nov. 1, 1889. She was the youngest of two daughters of Amasa Ingham, who were well educated and engaged in teaching. In 1834, with a joint capital of \$5,000, the two sisters settled in Attica, N. Y., and opened a school. Three years afterward the citizens of Leroy induced them to remove to that village, and aided them in establishing Leroy Female Seminary. In 1840 the institution was incorporated, in 1852 it became a college, and in 1857 it received the privileges of a full university and the name of Ingham. Emily Ingham took charge of the educational work of the university, and Marietta, the financial management till her death in 1867. In 1847 Emily married Phineas Staunton, who greatly aided her in her work till the beginning of the civil war, when he entered the national army and was so severely injured in the battle of Fair Oaks that he had to retire from the service. After the war he made large collections in Europe and South America, to equip a department of natural sciences in the university. He died in Quito in 1869. His widow erected a memorial to him in the form of a university observatory, and in 1870 provided as a second memorial the art conservatory. In those de-

partments she deposited the results of her husband's scientific researches and his choicest paintings. She remained at the head of the university till 1887, when she placed it under the management of its alumnae.

Stearns, Jonathan French, clergyman, born in Bedford, Mass., in September, 1808; died in New Brunswick, N. J., Nov. 11, 1889. He was graduated at Harvard College in 1830, studied theology at Andover, and was licensed to preach in October, 1834. On Sept. 16, 1835, he was installed pastor of the First Presbyterian Church in Newburyport, Mass., and remained there till December, 1849. He was then called to the First Presbyterian Church in Newark, N. J., and remained in that pulpit till February, 1883, when he was retired. Dr. Stearns was Moderator of the General Assembly of the Presbyterian Church in 1868, and was active in promoting the reunion of the old and new school branches. He was author of "Historical Discoveries relating to the First Presbyterian Church in Newark" (1853), which is the basis of all subsequent histories of the city and vicinity.

Steinway, Theodore, manufacturer, born in Brunswick, Germany, Nov. 6, 1825; died there, March 25, 1889. He was the eldest son of Henry E. Steinway, founder of the American firm of Steinway & Sons, piano manufacturers, became a noted player on the piano when eight years old, and was educated in all the mechanical and scientific details of his father's business. In 1850 the elder Steinway came to the United States to establish a piano factory, and brought with him all his sons excepting Theodore, whom he left in Brunswick to manage his business there. On the death of two of his brothers in 1865, Theodore came to New York to assist his father, and from 1871, when his father died, till 1884, when he returned to Brunswick, he was the head of the American firm. He made the first cast-steel frame used for a piano in 1870, and took out thirty-four American patents, most of which related to upright instruments. He had in his Brunswick home a famous collection of musical instruments.

Stratton, John L. N., lawyer, born in Mount Holly, N. J., in 1817; died there, May 17, 1889. He was graduated at Princeton in 1836, was admitted to the bar in 1839, was elected to Congress in 1858 and 1860, and served there as a member of the committees on Elections, on Ways and Means, and on National Armories. Subsequently he became collector of internal revenue for his district.

Sturgis, Samuel Davis, soldier, born in Shippensburg, Pa., June 11, 1822; died in St. Paul, Minn., Sept. 28, 1889. He was graduated at the United States Military Academy in 1846, and entered the army as brevet second lieutenant Second Dragoons. In the permanent establishment he was promoted second lieutenant, Feb. 16, 1847; first lieutenant, July 15, 1853; captain First United States Cavalry, March 3, 1855; major, May 3, 1861; lieutenant-colonel Sixth Cavalry, Oct. 27, 1863; and colonel Seventh Cavalry, May 6, 1869; was brevetted lieutenant-colonel, Aug. 10, 1861, for services at Wilson's Creek, Mo.; colonel, Aug. 29, 1862, for the second Bull Run; brigadier-general and major-general, March 13, 1865, for South Mountain and Fredericksburg; and was retired June 11, 1886. In the volunteer service he was appointed brigadier-general, Aug. 10, 1861, and was mustered out Aug. 24, 1865. He was captured by the Mexicans at Buena Vista, and was in service against the Indians during a large part of his military life.

Swett, Leonard, lawyer, born in Turner, Me., Aug. 11, 1825; died in Chicago, Ill., June 8, 1889. He was educated at Waterville (now Colby) University, but was not graduated; studied law in Portland, Me., and in Madison, Ind.; enlisted in the Fifth Indiana Infantry for service in the Mexican War, was taken prisoner at Vera Cruz, and after his release was discharged from the service and began practicing law in Bloomington, Ill., in 1848. He became an intimate friend of Abraham Lincoln and David Davis, and for several years traveled on horseback a circuit of fourteen counties, building up a large practice. In 1858 he was

elected to the Legislature as a Republican, the only political office he ever held, though he was active in political canvasses throughout his life. In 1860 he made the nomination speech for Mr. Lincoln for presidential candidate, and in 1888 performed the same service for Judge Gresham. During the civil war he had charge of a large number of cases for the Government, and in 1865 settled in Chicago, where he earned a high reputation both as a civil and criminal lawyer. In 1887 he delivered the oration at the unveiling of the statue of Abraham Lincoln, in Chicago.

Swinburne, John, physician, born in Deer River, Lewis County, N. Y., May 30, 1820; died in Albany, N. Y., March 28, 1889. He was graduated at the Albany Medical College in 1847, and appointed demonstrator in anatomy there. In 1861 he was appointed Chief Medical Officer on the staff of Gen. John F. Rathbone, and placed in charge of the depot for recruits at Albany; in May, 1862, was appointed Medical Superintendent of wounded New York troops at the front; was subsequently surgeon-in-charge at Savage's Station, and on June 29, 1862, was taken prisoner by the Confederates. Resigning his commission in the army, he was appointed health officer of the port of New York in 1864 and in 1866, and held the office six years. At the expiration of his terms he went abroad, served with the French during the Franco-German War, organized the American Ambulance Corps in Paris, and was in charge of it during the siege. He received the cross of the Legion of Honor for these services. In 1873 he returned to Albany; in 1882 was an independent candidate for Mayor, claimed the election, and was awarded the office after eighteen months of litigation; in 1884 was defeated for re-election; and the same year was elected to Congress from the Nineteenth New York District on the Republican and Citizens' ticket. Since 1873 he had maintained a free dispensary in Albany, in which he treated more than 100,000 cases, chiefly surgical.

Tavernier, Jules, artist, born in Paris, France, in April, 1844; died in Honolulu, Hawaii, May 18, 1889. He studied painting in Paris under Felix Barrias, of the École des Beaux Arts; had two pictures, a landscape and a study in black and white, in the Paris Salon in 1864; contributed several works to the Salon in 1870; came to the United States in 1872, made drawings for "The Graphic" and "Harper's Weekly," and settled in San Francisco in 1873. He was a founder of the Palette Club and First Vice-President of the Art Association of San Francisco, was successful as a landscape painter, had resided in Honolulu since 1884, and was court painter to the King.

Taylor, Alva B., manufacturer, born in Westport, Conn., May 12, 1803; died in Newark, N. J., Jan. 11, 1889. He received a common-school education, and worked at his father's forge till he was twenty-one years old, when he went to New York and entered the factory of R. Hoe & Co. as a machinist. He was soon promoted to be a foreman, and during the cholera epidemic became general superintendent of the entire works. In 1842 he established a printing-press manufactory of his own, to which his grandson, Alva B. Taylor, Jr., succeeded, under the firm name of the A. B. Taylor Manufacturing Company, in 1879. In 1861 his eldest son was admitted to the firm, and in 1867 became also connected with the Taylor Press Company in Chicago. He died in 1869, and the Western business reverted to his father. The elder Taylor was a thorough mechanic; he designed and built the Taylor country, Taylor drum cylinder, and three-revolution presses; invented the air springs now in general use on presses; and built perfecting presses for publishing houses in New York. On the morning of Feb. 4, 1850, the 200-horse-power boiler in his factory, Nos. 5 and 7 Hague Street, exploded, wrecked several buildings, and killed 64 persons.

Taylor, Isaac E., physician, born in Philadelphia, Pa., April 25, 1812; died in New York city, Oct. 30, 1889. He was graduated at Rutgers College in 1830, and at the Medical Department of the University of Pennsylvania in 1834. During 1840 he studied ob-

stetrics and diseases of women and children with Prof. Cazeaux of Paris, and from 1841 till 1849 was attending physician at the Demilt Dispensaries, New York city. In 1851 he was chosen physician to Bellevue Hospital. He then applied himself to improving the methods of hospital work; united the medical departments of Bellevue Hospital, the Penitentiary, Workhouse, Almshouse, Island, and Small-pox Hospitals under one organization; founded a medical college in connection with Bellevue, and was elected its President in 1861. He served the hospital as physician from 1851 till 1876, and had since been its consulting physician.

Taylor, William Rogers, naval officer, born in Newport, R. I., Nov. 7, 1811; died in Washington, D. C., April 14, 1889. He was appointed a midshipman in the United States navy April 1, 1828; was promoted passed midshipman June 14, 1834; lieutenant Feb. 10, 1840; commander Sept. 14, 1855; captain, July 16, 1862; commodore July 25, 1866; and rear-admiral Jan. 19, 1871; and was placed on the retired list Nov. 7, 1873. During his service in the navy he had been on sea duty eighteen years and eleven months, on shore or other duty fifteen years and five months, and was unemployed twenty-six years and five months. He served on the sloop "St. Mary's" during the Mexican War, and took part in the capture of Tampico and Vera Cruz; was on ordnance duty in Washington at the outbreak of the civil war; was commander of the "Housatonic" and senior officer off Charleston when the Confederate rams "Chocoma" and "Palmetto" attacked the blockading squadron in January, 1863; was flag-captain under Commodore Dahlgren in the operations against Morris Island; took part in the engagements with Forts Wagner and Sumter; and was in both attacks on Fort Fisher.

Terry, David S., lawyer, born in Todd County, Ky., in 1823; died in Lathrop, Cal., Aug. 14, 1889. He served with Gen. Houston in the Texan war against Mexico, and with Gen. Scott in the war between Mexico and the United States; organized a company of veteran Texan rangers on the discovery of gold in California, and went to Calaveras County; was engaged some time in mining, and afterward studied law and began practice in Stockton. In 1855 he was elected a justice of the California Supreme Court on the Native American ticket, and in 1857 succeeded Chief-Justice Murray. He strongly opposed the methods of the vigilance committee, and during the exciting scenes of June, 1856, nearly fatally stabbed Sterling A. Hopkins, one of its sergeants. In September, 1859, he killed United States Senator David C. Broderick in a duel, and, though a coroner's jury held him responsible for Broderick's death, he was acquitted on his trial for murder. During the civil war he served in the Confederate army, and afterward resumed practice in San Francisco. In 1880 he was defeated as Democratic candidate for presidential elector, while his colleagues were elected. He did not come prominently before the public again till March, 1885, when Sarah Althea Hill chose him for counsel in her notorious contest to establish her claim to be the wife of United States Senator William Sharon, the millionaire, which she had instituted in March, 1883. Senator Sharon died in November, 1885, and in the following month the United States Circuit Court decided that the alleged marriage contract was a forgery. On Jan. 7, 1886, Judge Terry and his client were married. The case was pushed on appeal, but without success. On Sept. 3, 1888, the matter was brought before Justice Stephen J. Field, of the United States Supreme Court, as a bill of revision, when the decision of the lower court was affirmed. Mrs. Terry arose in court and charged Justice Field with venality, and when he ordered her removal from the room for contempt of court, Judge Terry made a murderous attack on the court officers. Terry was committed for sixty days, and his wife for thirty. On Aug. 14, 1889, as Justice Field and United States Marshal David Nagle were dining in a hotel at Lathrop, while on their way to San Francisco, Judge Terry

and his wife entered. As soon as Terry saw Justice Field, he walked over to his table, struck him in the face, and made a motion as if about to draw a revolver or knife, when Marshal Nagle drew a revolver and shot Terry dead. Marshal Nagle and Justice Field were arraigned for murder and released on bail for trial. It was subsequently shown that the Federal authorities, fearing that Terry would attempt the justice's life, had specially detailed Marshal Nagle to protect Justice Field at all hazards in the discharge of his judicial duties. On Sept. 16 Nagle was declared justified in killing Terry, by the U. S. Circuit Court, and was released.

Timlow, George Whitfield, clergyman, born in Amity, N. Y., in 1823; died in Warwick, N. Y., May 2, 1889. He was graduated at the University of New York in 1840, was ordained in the Protestant Episcopal ministry, founded and was rector of Grace Church in Middletown, N. Y., for seven years, became rector of the Church of the Epiphany in New York city, and was afterward stationed in Lebanon Springs, N. Y., Boston, Mass., Salem, N. J., and at Christ Church, Warwick. He wrote a great deal for Church and scientific publications, and was a popular lecturer.

Townshend, Richard Wellington, lawyer, born in Prince George County, Md., April 30, 1840; died in Washington, D. C., March 9, 1889. He served several years as a page in the national House of Representatives, removed to Illinois in 1858, studied law, and was admitted to the bar in 1862. In 1863 he was appointed clerk of the Circuit Court of Hamilton County, Ill., in 1868-'72 was prosecuting attorney for the Twelfth Judicial Circuit of that State, and in 1873 removed to Shawneetown, Ill. He was a member of the Democratic State Central Committee of Illinois in 1864, 1865, 1874, and 1875, was a delegate to the National Democratic Convention in 1872, was elected to Congress from the 18th Illinois District as a Democrat in 1876, 1878, 1880, 1882, 1884, and 1886, and last served as chairman of the Committee on Military Affairs.

Tucker, Henry Holcombe, clergyman, born in Warren County, Ga., May 10, 1819; died in Atlanta, in September, 1889. He was graduated at Columbian College, Washington, in 1838; was Professor of Belles-Lettres in Mercer University, Macon, Ga., in 1856-'62, and president in 1866-'71; was active in establishing the Baptist Church in Rome, Italy; became Chancellor of the University of Georgia in 1874; and resigned in 1878 to become editor of "The Christian Index" at Atlanta. He published "The Gospel in Enoch" (Philadelphia, 1868); "The Position of Baptism in the Christian System" (1882); and "The Old Theology restated in Sermons" (1884).

Turner, Joseph Edward, physician, born in Bath, Me., Oct. 5, 1822; died in Wilton, Conn., July 24, 1889. His father was a farmer and ship builder. The son attended the academy in Bath, assisted his father in the ship-yard, and afterward studied medicine, in Philadelphia. He practiced for two years at Trenton, N. J., and then turned his attention to the work that thereafter exacted all his time and attention. A case of intemperance in a near relative—one that demanded his closest supervision—led his reflections to the formulation of the plan of an institution in which the inebriate should be medically treated, should have seclusion and protection, and should be surrounded by such moral and intellectual influences as were calculated to bring about a reformation. He set forth the then novel idea that inebriety was a disease and as such curable. This idea was at first received contemptuously. Finding little sympathy at home, he visited Europe in 1843 and again in 1848. There he had consultations with the foremost medical authorities. In Russia, he received marked attention and had free admittance to the hospitals and prisons of St. Petersburg, Moscow, and other cities. He found many warm friends of his central idea, and he also encountered much opposition. In New York, Dr. John W. Francis and Dr. Valentine Mott seconded his plans, the latter declaring that the facts accumulated in his own professional life "proved the disease of inebriety be-

yond all doubt." About 1850 Dr. Turner began the practical work of procuring legislation and pecuniary endowment for the establishment of an asylum for inebriates, the first institution of the kind in the world. He made personal calls upon leading men all over the country, and urged upon them the importance of his enterprise. He limited his subscriptions at first to \$10 each, hoping in this way to enlist the sympathies of the public. His efforts met with a promising degree of success. He then went to the Legislature of the State of New York for a charter. In 1852 this was refused; in 1853 it was referred to the next Legislature. In 1854 the bill was passed and the "United States Inebriate Asylum" was chartered. In 1857 the name was changed to that of "New York State Inebriate Asylum." The city of Binghamton gave to the asylum a noble donation of 250 acres for a site, and in September, 1858, the corner-stone of the building was laid. The Legislature had been asked for an appropriation of a tenth part of the excise money for the asylum, which was granted in 1859. Dr. Turner, during three years of anxiety and suspense, was constantly active in the circulation of petitions in behalf of the needed legislation. An efficient board of directors had been organized under the charter, and a powerful public sentiment was crystallized in support of the institution. The asylum is one of the most perfectly and completely built structures that illustrate the public charities of the State of New York; but, owing to dissensions that arose soon after its opening, it failed of its mission, and is now an insane asylum owned and directed by the State. In 1888, Dr. Turner published a "History of the First Inebriate Asylum in the World, by its Founder." In this book are carefully recited the detailed history of the institution, and the trials, embarrassments, and difficulties encountered by the author. Much space is given to the controversy with Dr. Willard Parker; several attacks in public journals upon Dr. Turner are reproduced; statements of his friends are submitted, and the addresses of eminent persons at public meetings in behalf of the asylum, and at the laying of the corner-stone are printed in full. There is also a history of the absurd indictment found against him and his associate Dr. Gardner, on a charge of arson, in burning the asylum. This was tried in September, 1867. Dr. Gardner was acquitted, and the judge ordered the indictment against Turner to be quashed. Dr. Turner subsequently engaged in organizing and establishing a "Woman's National Hospital" (for inebriates) at Wilton, Conn. The Legislature of Connecticut granted a charter in 1874, and revoked it in 1885, under influences that apparently proceeded from the doctor's persistent foes of earlier years. Ground was broken in 1881 for the "National Hospital" on the doctor's own farm of 153 acres, in Wilton, which was the first endowment of the asylum. He was married in 1862, and his widow and five children survive him.

Tuigg, John, clergyman, born in Cork, Ireland, Feb. 19, 1820; died in Altoona, Pa., Dec. 7, 1889. He was educated in Hallows College, Dublin, came to the United States in 1849, studied theology in St. Michael's (Roman Catholic) Seminary in Pittsburg, and was ordained May 14, 1850. He was an assistant in the Pittsburg cathedral till 1853, and was then sent to Altoona for missionary work. He was consecrated Bishop of Pittsburg on March 19, 1876. In 1883 he was granted a coadjutor, on account of failing health.

Tyler, Julia Gardiner, born on Gardiner's Island, N. Y., in 1820; died in Richmond, Va., July 10, 1889. She was a daughter of David Gardiner, was educated at the Chogary Institute in New York city, and after a brief trip to Europe went to Washington with her father early in 1844. An invitation was extended to them to accompany the presidential party on an excursion down the Potomac, on the new war vessel "Princeton," on Feb. 28, and during the trip Mr. Gardiner and several others were killed by the explosion of a gun. By direction of President Tyler, Mr. Gardiner's body was removed to the White House, and soon after the funeral the President, then a wid-

ower, began paying marked attention to the daughter. Their marriage followed on June 26. After their retirement on March 4, 1845, they resided at "Sherwood Forest," on James river, Virginia, till Mr. Tyler's death in 1862, when his widow passed several years on Staten Island, N. Y. After the war Mrs. Tyler spent a large part of her time in travel.

Usher, John Palmer, lawyer, born in Brookfield, Madison County, N. Y., Jan. 9, 1816; died in Philadelphia, Pa., April 13, 1889. He removed to Indiana



in youth, studied law and was admitted to the bar, and while practicing became interested in politics and served in the State Assembly and as Attorney-General. On March 20, 1862, he was appointed by President Lincoln First Assistant Secretary of the Interior, and on Jan. 8, 1863, he became Secretary, succeeding Caleb B. Smith,

resigned. He served till the close of Mr. Lincoln's first administration, and then resigned, but was continued in office till his successor qualified, May 15, 1865. After leaving the Cabinet he resumed his law practice, and removed to Lawrence, Kan.

Vail, Thomas Hubbard, clergyman, born in Richmond, Va., Oct. 21, 1812; died in Bryn Mawr, Pa., Oct. 6, 1889. He was graduated at Trinity College in 1831, and at the General Theological Seminary in 1835, was ordained deacon in New Canaan, Conn., in 1835, and priest in Boston in 1837, and, after serving in Philadelphia, Boston, and Cambridge, became rector in Essex, Conn., in 1839. From 1844 till 1857 he was rector in Westerly, R. I., and from 1857 till 1863 in Muscatine, Iowa. On Dec. 15, 1864, he was consecrated first Protestant Episcopal Bishop of Kansas. He published an edition of the Rev. Augustus F. Lyte's "Buds of Spring," poems, with memoir and additional poems of his own (Boston, 1838); "Plan and Outline, with Selection of Books under Many Heads, of a Public Library in Rhode Island" (1838); "Hannah; a Sacred Drama" (Boston, 1839); and "The Comprehensive Church" (1841; 3d ed., 1883).

Van Lennep, Henry J., missionary, born in Smyrna, Asia Minor, in 1816; died in Great Barrington, Mass., Jan. 11, 1889. He was the son of a Swedish merchant, consul at Smyrna, and was graduated at Amherst College in 1837, and at Andover Theological Seminary in 1839, was ordained to missionary work, and sailed for Turkey with his wife, under the auspices of the American Board. He labored in this field for thirty years, chiefly at Smyrna, Constantinople, and Tocat, and suffered from the Turkish persecutions to which all missionaries in that field and at that period were subjected. At one time his children were kidnaped, and at another his dwelling at Tocat was burned, he and his family barely escaping with their lives. He learned the languages of the Armenians, Turks, and Greeks, became President of the Theological School at Tocat, and, being an accomplished linguist, a skilled musician, an able artist, an effective preacher, and sympathetic teacher, had great influence over his people. He returned to the United States in 1869, was Principal of Ingham University, Leroy, N. Y., two years, and then removed to Great Barrington. He was author of "Bible Lands," "Travels in Little Known Parts of Asia Minor," and "The Oriental Album."

Van Vorst, Hooper Cummings, lawyer, born in Schenectady, N. Y., Dec. 3, 1817; died in New York city,

Oct. 26, 1889. He was graduated at Union College in 1836, studied law, and was admitted to the bar. In 1852 he removed to New York city, and practiced alone till 1867, when he formed the law firm of Van Vorst and Beardsley, and was appointed Judge of the Court of Common Pleas, to fill a vacancy. He held this office a year. In 1872 he was elected a judge of the Superior Court of New York as a Republican, and served to the end of the term in 1886. During all of this period, excepting the first two years, he sat in the Equity Court by assignment.

Vogdes, Israel, soldier, born in Willistown, Pa., Aug. 4, 1816; died in New York city, Dec. 7, 1889. He was graduated at the United States Military Academy in 1837, and entered the army as second lieutenant, First Artillery. In the permanent establishment he was promoted first lieutenant, July 9, 1838; captain, Aug. 20, 1847; major, May 14, 1861; lieutenant-colonel, Fifth United States Artillery, June 1; and Colonel, First United States Artillery, Aug. 1, 1863; was brevetted brigadier-general, April 9, 1865, for gallant and meritorious services in the field during the civil war; and was retired at his own request, Jan. 2, 1881. In the volunteer service he was appointed brigadier-general, Nov. 29, 1862; and was mustered out, Jan. 15, 1866. He was Assistant Professor of Mathematics in the United States Military Academy from his graduation till 1849, served against the Seminole Indians in Florida, was attached to the Artillery School at Fortress Monroe in 1858-'60, and was ordered to re-enforce Fort Pickens, Fla., in 1861. He was captured while repelling a night attack on Santa Rosa Island, Oct. 9, 1861, and confined in Libby Prison till exchanged in August, 1862. The batteries on Lighthouse Inlet were constructed by him, and he commanded them in the attack on Morris Island, July 9, 1863. From August, 1863, till February, 1864, he was engaged in the operations against Charleston. After the war he was in command of the 1st Artillery, at Fort Hamilton, N. Y., till his retirement.

Wakeman, Abram, lawyer, born in Fairfield, Conn., May 31, 1824; died in New York city, June 29, 1889. He was graduated at Herkimer Academy, N. Y., and was admitted to the bar in New York city in 1847. Soon afterward he became active in Whig politics, and in 1850 and 1851 was elected to the Legislature. In 1856 he was a member of the National Republican Convention, and from 1856 till 1869 a member of the National Republican Committee. In 1856 he was elected to Congress as candidate of the Free Soil and American parties. At the outbreak of the civil war he raised the Eighty-first Pennsylvania Volunteers, and was elected colonel, but soon afterward resigned, at President Lincoln's request, to take the appointment of postmaster in New York city. During the draft riots in 1863 his residence and valuable law library were burned by the mob, in revenge for his successful defense of the Post-Office. He was appointed surveyor of the port in 1865, and served till 1869.

Walker, James, artist, born in England, June 3, 1819; died in Watsonville, Cal., in September, 1889. He was brought to New York city when a child, and made his home there till 1884, when he removed to San Francisco to execute an order for a large French battle-painting for a private gallery. His works are mainly large historico-military pictures, the best known being "The Battle of Chapultepec," in the national Capitol; "The Battle of Lookout Mountain," painted on the order of Gen. Hooker, and exhibited in the principal American cities; and "The Repulse of Long-trest" at Gettysburg.

Washburn, Charles Ames, author, born in South Livernmore, Me., March 16, 1822; died in New York city, Jan. 26, 1889. He was graduated at Bowdoin College, removed to San Francisco in 1850, and became editor of the "Alta California." In 1861 he was appointed United States Commissioner to Paraguay, and he was United States minister there during the war between that country on the one hand and Brazil, Uruguay, and the Argentine Republic on the other in 1865. For six months the lives of himself

and wife were in great peril, and they were only saved by the timely arrival of a United States naval rescuing expedition. He returned to the United States in 1868, and subsequently published "A History of Paraguay," "Robert Thaxter," "Gomery of Montgomery," and "Political Evolution."

Watts, Frederick, lawyer, born in Carlisle, Pa., May 9, 1801; died there, Aug. 17, 1889. He was graduated at Dickinson College in 1819, admitted to the bar in 1824, and appointed reporter for the Supreme Court of Pennsylvania in 1831. He held this office till 1845, and was then elected President of the Cumberland Valley Railroad. On March 9, 1849, he was commissioned President Judge of the Ninth Judicial District, and retained the office till 1852, when it was made elective and he was defeated. In 1854 he was elected President of the Board of Trustees of the Pennsylvania Agricultural College, of which he was a founder, and in 1871 he was appointed United States Commissioner of Agriculture.

Weir, Robert Walter, artist, born in New Rochelle, N. Y., June 18, 1803; died in New York city, May 1, 1889. He began studying painting in 1822, went to Florence, Italy, in 1824, and to Rome in 1825. He painted "Christ and Nicodemus" and "The Angel releasing Peter," in the former city, and became associated with Horatio Greenough, the sculptor, in the latter. He returned to New York city in 1827. In 1828 he was elected an associate member of the National Academy of Design, and in 1829 an academician. On the death of Charles R. Leslie, in 1834, he succeeded him as Professor of Drawing in the United States Military Academy, with the rank of colonel in the army, and served till July 25, 1876, when he was retired under the limitation act. His



principal paintings are: "The Landing of Henry Hudson," "Bourbon's Last March," "Bianca," "Religion," "William Deloraine at the Tomb of Michael Scott," "Subsiding of the Waters after the Flood," "Christ and the Disciples on the Way to Emmaus," "The Two Marys at the Sepulchre," "The Evening of the Crucifixion," "Columbus before the Council at Salamanca," "Crossing the Styx," "The Embarkation of the Pilgrims," and a large allegorical work representing Peace and War, which occupies the end of the chapel at the Military Academy. He received \$10,000 for his "Embarkation of the Pilgrims," and with the money built the Church of the Holy Innocents at Highland Falls, N. Y.

Welch, Adonijah Strong, educator, born in East Hampton, Conn., April, 12, 1821; died in Pasadena, Cal., March 15, 1889. He was graduated at the University of Michigan in 1846, and was admitted to the bar and appointed Principal of the Jonesville High School, Michigan, in 1847. In 1851 was appointed Principal of the Michigan State Normal School. In 1865 he went to Florida, where he became chairman of the State Republican Committee, and was elected United States Senator in 1868, for the term ending March 3, 1869. At the expiration of his term he removed to Iowa and was chosen President of the State Agricultural College, an office he retained till 1883, when he took the chair of Psychology there. He published "Analysis of the English Sentences" (New York, 1850); "Object Lessons" (1861); "Talks on Psychology" (1888); and "Teacher's Psychology" (1888).

Welch, Philip H., humorist, born in Angelica, Alleghany County, N. Y., in 1849; died in Brooklyn, N. Y., Feb. 24, 1889. He was educated for commer-

cial life, and followed it for twelve years in New York. While on a business trip to Oil City, Pa., during the petroleum excitement, he sent a series of reports on the industry to "Bradstreet's." In 1882 he joined the staff of the Rochester "Post-Express," and for a year conducted the humorous column in it entitled "The Present Hour." He then went to the Philadelphia "Call," and established its "Accidentally Overboard" column, and returning to New York began contributing "Queer Wrinkles" to the "Sun," and other humorous paragraphs and sketches to "Puck," "The Judge," "Life," "The Epoch," and "Harper's Bazar." His friends completed a trust fund of \$25,000 for his widow and children in March, 1890.

Wessells, Henry Walton, soldier, born in Litchfield, Conn., Feb. 20, 1809; died in Dover, Del., Jan. 12, 1889. After he was graduated at West Point in 1833, he took part in the Seminole War of 1837-'40, first as a second lieutenant of infantry, and then as first lieutenant, being promoted on July 7, 1838. In Gen. Scott's Mexican campaign he was promoted captain, Feb. 16, 1847, and received the brevet of major for gallantry at Contreras and Churubusco. In the former contest Capt. Wessells, though wounded, seized the regimental flag on the death of the color-sergeant, and put himself at the head of his men. On his return from the war the State of Connecticut voted him a jeweled sword, which was presented to him with military ceremonies. Capt. Wessells was on the Pacific coast in 1849-'54, and was in the Sioux expedition of 1855, after which he served in the Northwest till the civil war. On June 6, 1861, he was promoted major, and on Aug. 22, of that year he received the colonelcy of the Eighth Kansas Volunteers. After serving on the Missouri border, he resumed his commission in the regular army on Feb. 15, 1862, and in March was transferred to the Army of the Potomac. He was made a brigadier general in the volunteer army on April 25, and served in the Peninsula, receiving the regular army brevet of lieutenant-colonel for gallantry at Fair Oaks, where he was wounded. In McClellan's change of base he commanded the rear-guard, and he then engaged in the defense of Suffolk, Va., afterward serving in North Carolina. After serving at Kinston, Goldsborough, and New Berne, he was placed on May 3, 1863, over the sub-district of the Albemarle. On April 17, 1864, he was attacked at Plymouth, N. C., where he had a garrison of 1,600 men, by Gen. Robert F. Hoke with about 7,000 Confederate troops and the iron-clad "Albemarle." After a gallant defense, which lasted four days, Gen. Wessells surrendered the town. He was taken to Libby Prison, whence he was transferred successively to Danville, Macon, and Charleston. At the last-named place he was one of the officers that were placed under the fire of the national batteries on Morris Island. On Aug. 3, 1864, he was exchanged, and on Nov. 11 he became commissary of prisoners, which post he held until the close of the war. He was promoted lieutenant-colonel on Feb. 16, 1865, and brevetted colonel, to date from April 20, 1864, "for gallant and meritorious services during the rebel attack on Plymouth, N. C." On March 13 he was given the regular army brevet of brigadier-general. He then served on the Northwestern frontier till Jan. 1, 1871, when he was retired. After that time he resided in his native place, but at the time of his death he was on a visit to Delaware.

West, Theodore Sterling, soldier, born in Philadelphia, Pa., about 1839; died in Asbury Park, N. J., Aug. 15, 1889. He was graduated at the University of Waukesha, Wis., and entered the national army as colonel of the Fifth Wisconsin Volunteers early in the civil war. He was taken prisoner and confined in Libby Prison, Richmond, and with Gens. Hobart and Creary, planned and executed a memorable escape. After rejoining the army he was promoted to brigadier-general, and at the close of the war engaged in business in California till within six months of his death, when with Col. C. C. Leffer he became proprietor of the Hotel Langham at Washington, D. C.

Wharton, Francis, author, born in Philadelphia, Pa., March 7, 1820; died in Washington, D. C., Feb. 21, 1889. He was graduated at Yale College in 1839, and admitted to the bar in 1843. In 1846 he was appointed Assistant Attorney-General of Pennsylvania, and after the expiration of his term practiced in his native city till 1856, when he became Professor of Logic and Rhetoric in Kenyon College. In 1863 he resigned this office to take orders in the Protestant Episcopal Church. He was rector in Brookline, Mass., three years, and from 1866 till 1885 was Professor of Ecclesiastical and International Law in Cambridge Divinity School and Boston University. In March, 1885, he was appointed United States Examiner of International Claims in the Department of State, and in 1888 was designated by Congress as editor of the diplomatic correspondence of the Revolutionary period. His publications include: "A Treatise on the Criminal Law of the United States" (1846); "The Law of Contracts"; "Criminal Law"; "Criminal Pleading and Practice"; "Criminal Evidence"; "Precedents of Indictments and Pleas"; "The Law of Evidence in Civil Issues"; "The Law of Negligence"; "The Law of Homicide"; "Conflict of Laws"; "Commentary on the Law of Agency and Agents"; "Medical Jurisprudence"; "Commentaries on American Law"; "A Treatise on Theism and Modern Skeptical Theories"; "The State Trials of the United States during the Administrations of Washington and Adams"; "The Silence of Scripture"; and "Digest of International Law."

Wheeler, Norman W., naval architect, born in Western New York, in 1829; died in Brooklyn, N. Y., Oct. 7, 1889. He learned the machinist's trade in Wisconsin, and, settling in New York city, became identified with its ship-building industry. Many of the improvements on steam pumps now in use were invented and patented by him. Early in the civil war he designed the engines and other machinery of the double-turreted ironclad steamer "Keokuk," which was sunk in the first attack on Charleston in 1862. Subsequently he designed all the United States gunboats built at the Cramp works in Philadelphia. After the war he designed some of the most successful iron vessels now employed on the Great Lakes.

Wickes, Stephen, physician, born in Jamaica, Long Island, N. Y., March 17, 1813; died in Orange, N. J., July 8, 1889. He was graduated at Union College in 1831, and at the Medical Department of the University of Pennsylvania in 1834; practiced in Troy, N. Y., from 1836 till 1852; and then settled in Orange, N. J. He was chairman of the standing committee of the New Jersey Medical Society and editor of its "Transactions" for twenty-five years; was made an honorary member of the society in 1868 and elected its president in 1884; and was for many years a life member, chairman of one of the most important committees, and corresponding secretary of the New Jersey Historical Society. His most widely known publications are: "The History of New Jersey Medicine, and of its Medical Men, from the Earliest History of the Province to 1800," "Sepulture, its History, Methods, and Requisites," and "Living and Dying; their Physics and Psychics." He left incomplete a "History of the Newark Mountains."

Wilkeson, Samuel, journalist, born in Buffalo, N. Y., May 9, 1817; died in New York city, Dec. 2, 1889. He was graduated at Union College, admitted to the bar in 1840, and entered journalism in 1856, when he established "Democracy," a radical daily paper, in Buffalo. From Buffalo he went to Albany, where he was editor and principal owner of the "Evening Journal" for two years, retiring on account of failing health. About two years afterward he became an editorial writer and day editor on the New York "Tribune," and during the greater part of the civil war was the Washington correspondent for that paper. In 1868 he was temporarily released from his employment on the "Tribune," that he might aid Jay Cooke, the Government fiscal agent, in placing the war loans of 5-20, 10-40, and 7-30 bonds, and the

success of those loans was due to his efforts in securing the services of nearly every newspaper of influence in the United States. Subsequently he aided in securing the passage in Congress of a bill in favor of the Northern Pacific Railroad, and inducing Jay Cooke to become the fiscal agent of the company. He was the historian of the private surveying party sent out by Mr. Cooke to examine the proposed route, and in March, 1870, was elected secretary of the company. He held this office till his death, and, beside his duties as secretary, wrote and published a large amount of literature promoting the construction of the railroad and describing the almost unknown country that it traverses.

Williamson, Isaiah Vansant, philanthropist, born in Fallsington, Bucks Co., Pa., Feb. 3, 1803; died in Philadelphia, Pa., March 7, 1889. He went to Philadelphia and opened a small dry-goods store about 1824, soon became partner in a wholesale establishment, and by 1830 was considered worth \$200,000. Up to this time he had been active in social life; but suddenly he withdrew from all scenes of festivity, began dealing in stocks and bonds, and kept himself so secluded that the remainder of his long life was nearly passed without the public gaining any knowledge of it beyond that of his severely economical habits and his very liberal benefactions to charitable and religious institutions. On Dec. 1, 1888, public announcement was made that he had placed in the hands of a board of trustees property and other securities aggregating in value \$2,500,000, to be used for the erection and maintenance of an institution to be known as the Williamson Free School of Mechanical Trades. The site of the school is two miles below Media, Delaware Co., Pa., and contains about 350 acres. On the probating of his will, March 11, 1889, it was found that he had left an estate of about \$14,000,000, and, besides the \$2,500,000 for the mechanical school, had bequeathed about \$9,000,000 to relatives and sums ranging from \$5,000 to \$100,000 each to every Protestant charitable institution in existence in Philadelphia at the time of signing his will. He had given away \$1,500,000 since 1876, and his total benefactions were estimated at about \$5,000,000.

Wing, Conway Phelps, clergyman, born near Marietta, Ohio, Feb. 12, 1809; died in Carlisle, Pa., May 7, 1889. He was graduated at Hamilton College in 1828, and at Auburn Theological Seminary in 1831; was pastor at Lodus, Wayne Co., N. Y., four years; at Ogden, N. Y., four years; at Monroe, Mich.; at Huntsville, Ala.; and from April 28, 1848, till October, 1875, of the First Presbyterian Church at Carlisle, Pa. He contributed notable papers on "The Historical development of the Doctrine of the Atonement" and "The Permanent in Christianity" to the "Presbyterian Quarterly Review," and on "Miracles and the Order of Nature" to the "Methodist Quarterly"; wrote the articles on "Federal Theology" and "Gnostics and Gnosticism" in McClintock and Strong's "Cyclopedia"; assisted in translating "Hase's Manual of Ecclesiastical History" and "Kling's Commentary on Second Corinthians"; and published several historical works, including "Historical and Genealogical Register of the Descendants of John Wing of Sandwich" (1885; 2d ed., 1886).

Wood, Bradford R., lawyer, born in Westport, Conn., Sept. 30, 1800; died in Albany, N. Y., Sept. 26, 1889. He graduated at Union College in 1824, studied law in Watertown and Albany, was active in Democratic antislavery politics and in temperance movements, was Representative in Congress from Albany County in 1845-'47, and was United States minister to Denmark in 1861-'65.

Woolsey, Theodore Dwight, educator, born in New York city, Oct. 31, 1801; died in New Haven, Conn., July 1, 1889. He was graduated at Yale College in 1820; studied law in Philadelphia and theology in Princeton, was licensed to preach in 1825, and spent 1827-'30 studying Greek and literature in Leipsic, Bonn, and Berlin. He was appointed Professor of Greek in Yale College in 1831, and occupied the chair

till 1846, when, on Oct. 21, he assumed the presidency of the institution. In this office he remained twenty-five years, resigning in 1871, and soon afterward becoming a member and chairman of the American Committee on New Testament Revision, to which he gave his aid till 1881. Under his administration of the college, the curriculum was reconstructed and improved, many new scholarships were founded (of which four were by himself), and several wealthy people were induced to erect additional buildings. Previous to introducing the Greek tragedies to his classes, he edited several, adapting them particularly to his wants. These include the "Alcestis" of Euripides (Cambridge, 1834); the "Antigone" of Sophocles (1835); the "Electra" of Sophocles and the "Prometheus" of Æschylus (1837); and the "Georgias" of Plato (1843). His other publications include: "Introduction to the Study of International Law" (Boston, 1860; 5th ed., New York, 1879); "Religion of the Present and of the Future" (1871); "Political Science, or the State theoretically and practically considered" (1877); and "Communism and Socialism in their History and Theory: a Sketch" (1880). He also edited Francis Lieber's "On Civil Liberty and Self-Government" (Philadelphia, 1871) and "Manual of Political Ethics" (1871).

Yard, Edward Mason, naval officer, born in Hunterdon, N. J., Nov. 24, 1809; died in Trenton, N. J., May 2, 1889. He was appointed a midshipman in the United States Navy Nov. 1, 1827; was promoted lieutenant Feb. 23, 1838; served through the Mexican War, first as executive officer and afterward as commander of the "Dale," and distinguished himself at the capture of Guaymas and in other operations on the west coast of Mexico. He was promoted commander in 1855, was lighthouse inspector from 1856 till 1859, and at the outbreak of the civil war was promoted captain and assigned to the command of his old vessel the "Dale." On June 18, 1862, he was retired under the age-limit law of 1861, but rendered service in the Ordnance Department till 1865, and was permanently retired on May 3, 1866.

OBITUARIES, FOREIGN. Sketches of a few of the most eminent foreigners that died in 1889 may be found in their alphabetical places in this volume, accompanied with portraits.

Addington, Lord (better known as John Gellibrand Hubbard), an English financier, born in 1805; died at Addington Manor, Buckinghamshire, Aug. 28, 1889. He was trained in commercial pursuits, became the head of a firm of Russia merchants and a director of the Bank of England, and entered Parliament as a Conservative in 1859, representing the borough of Buckingham till 1868. He was defeated in that year, but returned as a member for the city of London in 1874, and was appointed on the Privy Council. He published many pamphlets on the income tax, in defense of the corn duties, on the currency, and on other monetary questions. In 1887 he was raised to the peerage as Baron Addington.

Albery, James, an English dramatist, born in 1832; died Aug. 16, 1889. He studied architecture, but entered upon a commercial career. He wrote farces from his youth, and "Dr. Davy" and other dramas were acted in London before he achieved a popular success in 1870 with "The Two Roses." Subsequently he wrote "Pink Dominoes," an adaptation from the French, "The Denhams," "Where's the Cat?" and other comedies, his last being "Feather-brain," produced in 1885.

Allingham, William, poet, born in Ballyshannon, Ireland, in 1828; died in London, Nov. 20, 1889. His father was a banker, and the son received a good education. He early became a contributor to the "Athenæum," "Household Words" (in the first number of which appeared "The Wayside Well"), and other periodicals. His first volume of poems appeared in 1850, and in 1854 a second volume, entitled "Day and Night Songs," was published. In that year he visited Hawthorne, who made the fol-

lowing record in his "English Note-Books": "There came to see me, the other day, a young gentleman, with a mustache and a blue cloak, who announced himself as William Allingham, and handed me a copy of his poems, a thin volume with paper covers, published by Routledge. I thought I remembered hearing his name, but had never seen any of his works. His face was intelligent, dark, pleasing, and not at all John-Bullish. He said that he had been employed in the customs in Ireland, and was now going to London to live by literature—to be connected with some newspaper, I imagined. He had been in London before, and was acquainted with some of the principal literary people—among others, Tennyson and Carlyle. He seemed to have been on rather intimate terms with Tennyson. . . . We talked a while in my dingy and dusky consulate, and he then took leave. His manners are good, and he appears to possess independence of mind." In 1855, an enlarged edition of "Day and Night Songs" was brought out, with illustrations by D. G. Rossetti, Millais, and A. Hughes. In 1864 he published a long poem, entitled "Laurence Bloomfield in Ireland." It had appeared in "Fraser's Magazine," in twelve chapters, and consisted of sketches of contemporary Irish character, a new thing in narrative poetry. He edited the "Ballad Book," of the "Golden Treasury" series, and received a literary pension. In 1874 he became editor of "Fraser's Magazine," and in the same year married Miss Helen Paterson, the artist. In 1877 he published "Songs, Poems, and Ballads." Among the best known of Allingham's verses are those entitled "The Mowers," "Death deposed," and the song "Lovely Mary Donnelly."

Amari, Michele, an Italian historian, born in Palermo in 1806; died in Florence, July 16, 1889. His first work, "La Fondazione dei Normanni in Sicilia" (Palermo, 1834), established his reputation in the learned circles of Europe. He pursued his studies in the archives of the island, and published researches throwing new light on the Sicilian Vespers (1836) and an elaborate treatise on the epoch of the rebellion against the French, under the title of "Un periodo della storia Siciliana nel Secolo XIII" (Palermo, 1841). This simple title, he thought, would prevent the Bourbon Government from interfering with the publication. But the King and his minister Del Carretto, instead of allowing this account of the struggle of the Sicilians for freedom to pass as an objective scholarly production without political import, supposed that in Charles d'Anjou and the French commander Guillaume d'Estendard a portrayal of their own characters was intended. The book was suppressed, and the publisher was imprisoned till he died. Amari was summoned to Naples, but, knowing what would be his fate, he went to Paris, where he published the work under the real title of "La guerra del Vespro Siciliano" (1843). It was translated into English by Lord Ellesmere and also into German. Possien and Chantrel, by means of a garbled French translation, endeavored to turn the book into a reactionary document, causing unpleasant misunderstandings that were removed by the intercourse of the author with Thiers, Michelet, Lenormant, and other French historians. In Paris he perfected himself in Arabic, and became known as one of the first of Oriental scholars. At the uprising of the Sicilians in 1848 he returned to his native land, was appointed a professor in the university, was chosen a deputy, and later became Minister of Education. On the restoration of the Bourbon monarchy he went again into exile, and followed his favorite studies in Paris till Tuscany became free, when he became Professor of the Arabic Language and Literature at Pisa, and afterward at Florence. After the unification of Italy he became a senator, and in 1862 Minister of Public Instruction, resuming his professorship in 1864.

Anzengruber, Ludwig, an Austrian dramatist, born in 1839; died in Vienna in December, 1889. He was a humorous writer and novelist, skilled in depicting the picturesque manners of the peasantry of Upper Aus-

tria and the Tyrol. His first dramatic piece, "Der Pfarrer von Kirchfeld," achieved remarkable success, and opened for the author a prospect of prosperity that he was only beginning to realize at the time of his sudden death. He had recently been appointed reader at the Volkstheater of Vienna, and within a few weeks, had obtained success with a new drama.

Augier, *Emile*, a French dramatist, born in Valence, Drôme, Sept. 7, 1720; died in Croissy, near Paris, Oct. 25, 1889. After completing his collegiate course in 1839, he was placed in a notary's office. But he was allowed to abandon his legal studies after two years, and given time to choose a career more attractive to his mental temperament. The Duc d'Aumale made him his librarian. The Parisian public had grown tired of the romantic school after glorifying it for fifteen years, and damned Victor Hugo's "Burgraves" on its presentation. Rachel's revival of the tragedies of Corneille awakened an interest in the classic style, and Ponsard, observing the current of popular taste, appeared with his drama of "Luerèce." Augier followed the lead of Ponsard, with a better command of the style, versification, and language of the writers of the seventeenth century. His play of "La Ciguë" was produced at the Odéon in 1844 with success, pleasing the public not more because it conformed to the canons of the classic French dramatists than because, although the scene was in ancient Attica, the psychological theme was essentially modern, that of a debauchee redeemed by the power of love. This graceful comedy not only rendered the young author famous, but made him one of the leaders of the dominant school. His second acted play, "Un homme de bien," delineating the character of a self-deceiving hypocrite, was brought out in the following year. In 1848 Augier produced "L'Aventurière," in which the influence of the romantic school is apparent, a drama representing the arts of an adventuress who sought to ensnare in marriage a Spanish hidalgo. The play is considered by many his masterpiece, especially in the polished form that the author gave it ten years before his death. "Gabrielle" (1849), having for its subject a wife of wavering virtue recalled to her duty, won for him the Monthyon prize of the Academy. "L'Habit vert" is a witty proverb that he wrote with Alfred de Musset. "Le Joueur de flûte" (1850), has its scene in classic Greece, and was intended as a companion piece to "La Ciguë." From this time all his more ambitious dramas were in prose. "Diane," written in 1852, for Rachel, was not very successful. "Philiberte," is a pleasing picture of the eighteenth century in verse. "Pierre de touche" (1853), shows the evil effects of sudden wealth, and "Le Gendre de Monsieur Poirier," is a witty satire on the social ambitions of successful merchants. In his later works Augier is the censor of Parisian morals, scourging the striking evils of modern society with pitiless severity. "Le Mariage de Olympe" (1855), was intended as a counterblast to the "Dame aux Camélias" of Alexander Dumas fils. The Academy recognized his services to morality by making him a member in 1857. "Les Lionnes pauvres" (1858) and "Beau mariage" (1859) are pictures of ambitious and avaricious marriages. The former play was forbidden by the censorship as immoral, and was only liberated by the intervention of Prince Jerome Napoleon. "Les Effrontés" exhibits a swindling speculator who carries out his schemes by the purchased support of the press. The insinuation against the journalistic profession caused much comment. "Le Fils de Giboyer" (1862) holds up to scorn the hypocrisy of the Legitimists in mingling politics with religion. This piece gave rise to more stir and controversy than any other modern play. Augier secured another triumph in 1864 with "Maître Guérin," which was succeeded in 1868 by "Paul Forestier," "Lions et Renards" (1869), contains portraits of the Duc de Morny, Louis Venillot, and the millionaire Mirès. "Madame Caverlet" (1876) treats of divorce, and "Les Fourchambault" (1878), of the fate of illegitimate children. His last years were spent

in recasting and rewriting his plays. Augier was made a Senator of the Empire in 1870, but was prevented by the war from taking his seat.

Ball, *John*, an Irish explorer, born in Dublin in 1818; died in London, Oct. 21, 1889. Although a Catholic, he was educated at Cambridge. He joined the Irish bar, was assistant poor law commissioner during the famine, was elected to Parliament as a Liberal in 1852, and made a mark as the advocate of an advanced land policy. In 1855-'58 he was Under-Secretary for the Colonies in Lord Palmerston's Government. Refusing to take sides with the Papacy against Piedmont on the Italian question, he was defeated at the election of 1858 through the opposition of the priests. He then devoted himself to exploration of Switzerland, and afterward made botanical researches in Morocco, Peru, Patagonia, Teneriffe, and other mountainous regions. He published the standard "Alpine Guide" (3 vols., 1860-'65), and "Tour in Morocco and the Great Atlas."

Barbey d'Aureville, *Jules Amedée*, a French author, born in St.-Sauveur-le-Vicomte, La Manche, Nov. 2, 1808; died in Paris, April 23, 1889. He published unsuccessful pamphlets in Paris at the age of eighteen, returned to his province, where he contributed to the press, and after twenty years reappeared at the capital as a writer of caustic criticisms in the "Pays," an essayist, and a novelist. His first successful book was "Brummel et le dandyisme." In his most celebrated romance, "Une vieille maîtresse" (1851), he mingles religious zeal with immorality in strange confusion. "L'Ensorcelée" (1854) is a romance. A collection of his critical studies was published under the title "Les Œuvres et les hommes" (1861). His "Prêtre marié," a novel, was condemned by the Church censors. He was an ardent Royalist. His style and literary position found more recognition in his last years, when some of the younger writers paid him the respect due to the founder of a school, than when his powers were at their best.

Blachford, *Lord*, an English statesman, born in 1811; died Nov. 21, 1889. He was the eldest son of Sir Frederick L. Rogers, was educated at Eton and Oxford, was called to the bar in 1836, became a frequent contributor to the press, and one of the founders of the "Guardian" newspaper in 1846, and in the same year was appointed a Commissioner of Lands and Emigration. Sir Henry Rogers, who succeeded to his father's title and large estates in 1851, received several appointments in connection with colonial affairs, and in 1859 was made permanent Under-Secretary of State for the Colonies in Lord Palmerston's Government. He retired in 1871, with the rank of Privy Councillor, and was raised to the peerage as Baron Blachford.

Blanchard, *Edward Laman*, an English *littérateur*, born in 1820; died in London, Sept. 5, 1889. He was the son of William Blanchard, an actor. Before he was twenty years old he produced thirty dramas and farces. At the age of twenty-one he edited a short-lived weekly, entitled "Chambers's London Journal," and wrote "The Artful Dodger," a popular farce. For thirty-five years he composed the pantomimes for Drury Lane Theatre. In addition to many other dramatic pieces, he edited Dugdale's "England" and "Willoughby's Shakspeare"; wrote guide-books, two novels entitled "Temple Bar" and "Man without a Destiny," and "The Carpet Bag and Sketch-Book"; contributed to the periodical press, and for some time edited the "New London Magazine." From 1863 till his death he was on the staff of the "Daily Telegraph."

Bottesini, *Giovanni*, an Italian musician, born in Crema, Lombardy, Dec. 24, 1821; died in Palma, July 6, 1889. His father was a clarionetist, and his uncle was a priest and first violinist in the Cathedral of Crema. In 1835 Giovanni obtained a free scholarship in the conservatory of Milan. In 1840 he made his *début* in Crema, and his fame as a double-bass player spread throughout Italy. Subsequently he went to the United States, where he remained until

1856, with the exception of 1849, when he made his first appearance in London at a concert of the Musical Union. He frequently played at the London Philharmonic, at Jullien's promenade concerts, and at the popular concerts until the time of his death. He played on a three-stringed bass viol, and used a bow like that for a violoncello. His wonderful feats upon this cumbersome instrument caused him to be regarded as a virtuoso, and he was called the "Paganini of the double bass." He was a good conductor, and directed the Italian opera in Paris from 1855 till 1857, and afterward held the same post in Cairo, where he brought out Verdi's "Aida," Dec. 24, 1871. He wrote pieces for the display of his own technique, and was the author of several operas, one of which, "Ali Baba," was first represented in London in 1871. He also wrote symphonies, overtures, songs, and a cantata, "The Garden of Olivet," composed for the Norwich, England, Festival of 1887. His "Method" for the double bass is a standard work of instruction.

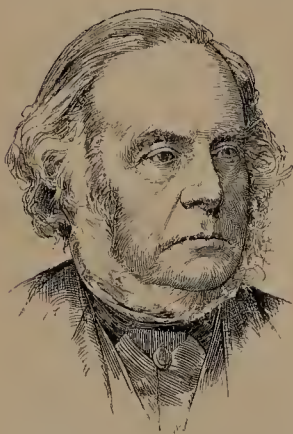
Bouverie, Edward Pleydell, an English statesman, born in 1818; died in London, Dec. 16, 1889. He was a son of the Earl of Radnor, received his education at Cambridge, and, soon after graduating in 1838, entered public life as a secretary to Lord Palmerston. He was called to the bar in 1843, and in the following year was elected to Parliament, representing the constituency of Kilmarnock till 1874. He was Under-Secretary of State for the Home Department in 1850-'52, Vice-President of the Board of Trade in 1855, President of the Poor Law Board in 1855-'59, Church Estates Commissioner in 1859-'65, and from 1869 one of the ecclesiastical commissioners for England. He came into conflict with Mr. Gladstone on the question of the Irish University bill, was defeated at the next general election, and subsequently became manager of financial companies, and, as chairman of the Corporation of Foreign Bondholders, contributed to the adjustment of the Turkish and Spanish debts and those of other countries.

Bradley, Edward, an English author, born in Kidderminster in 1827; died in October, 1889. He was graduated at Durham University in 1850, took orders in the English Church, and was successively incumbent of Bobbington, rector of Denton and then of Stretton, and vicar of Lenton from 1883. Among his works, which were signed with the pen-name of "Cuthbert Bede," are the "Curate of Granston," "Tour in Tartan Land," "The Rook's Garden," and "Matins and Muttons." The most celebrated one is "The Adventures of Verdant Green," a humorous picture of student life at Oxford (1854).

Bright, John, an English statesman, born in Rochdale, Lancashire, Nov. 16, 1811; died there, March 27, 1889. His family had been for generations Quakers and non-conformists. His father had worked as a weaver at six shillings a week until two years before the birth of John, when he purchased an old cotton mill and entered upon the business of cotton manufacture. In this he prospered and laid the foundation of future wealth for his eleven children. As they arrived at suitable age, after slight schooling, the sons were taken into the business. John, who was a very delicate boy, received a common English education, and said, in later life, that while he had

sometimes regretted not having been kept longer at school, at the time it was a great relief to be allowed to come home and go to work with his father. While

he had acquired no knowledge of classic authors, the love of good reading had been encouraged, and while very young he must have imbibed from Milton—whose poetry he knew by heart, although he cared little for his prose—the spirit of classic lore. With the Bible, especially the writings of the Hebrew poets and prophets, he was very familiar. His other reading was uncritical and principally for the loftiness of sentiment. He brought many obscure authors into notice by quoting from them in his speeches, throwing the magnetism of his fervid eloquence and pure, resonant voice over their earnest but often inelegantly expressed sentiment. He said once, in answer to a question, "If you come across a quotation in any speech of mine which you don't recognize, it is probably George Wither's." Of Shakespeare Mr. Bright said: "It is true, I don't read him. The dialogue spoils him for me. The break from sentence to sentence, the question and answer, the continual interruption of the thought, divert the attention and impair the interest. The flow of thought is not sustained. The style goes to pieces." Toward the American poet Whittier Mr. Bright felt many drawings beside those of admiration for the Saxon simplicity of his style. They were both of the sect that had suffered much for conscience' sake, they both loved and defended the right, they both were stirred by strong religious feeling. It is a pleasure to think what a joy John Bright found in the poetry of Whittier, and what an exponent Whittier found in Bright. One evening, at a dinner-party, Mr. Bright recited the whole of "Snow-Bound" to the company, and finished the night by repeating short poems all the way home to the lady who "gave him a lift." He was especially interested in books of travel in his young days, and the first time that he ever spoke in public it was to move a vote of thanks to a lecturer for a course on the Holy Land. So greatly did these interest him that two or three years later he visited, during two vacations, with money earned by his own industry, Syria, Athens, and Constantinople, and embodied the result of his observations in a series of lectures, which he read in his own town with marked success. Meantime, he had appeared as a lecturer on temperance, and from this time he spoke frequently on questions of the day. At first he wrote his speeches, committed them, and rehearsed them after working-hours in the mill to an audience of one, a workman who was unsparing of his criticism. But as these questions began to move him more deeply, a marvelous power over people began to reveal itself, and the orator, the greatest that England was to produce in the nineteenth century, found his voice, and threw away written words forever. In his longest speeches, in after time, he had but slight notes for reference. In 1838 Mr. Bright took a prominent part in the Anti-Corn-Law movement. He was a member of the provisional committee of the League, organized in Manchester, wrote an elaborate reply to the Protectionist member for Oldham, and in speeches denounced the Corn Laws as "the curse of the factory system." In 1839 he married Elizabeth Priestman, of Newcastle, but after two years the young wife died. In speaking of the way in which he came to enter upon the long and intense struggle against the Corn Laws with Mr. Cobden, the founder of the movement that finally resulted in their abolishment, Mr. Bright said: "At that time I was at Leamington, and on the day when Mr. Cobden called on me—for he happened to be there at the same time on a visit to some relations—I was in the depth of grief, I might almost say of despair, for the light and sunshine of my house was extinguished. All that was left on earth of my young wife, except the memory of a sainted life and of a too brief happiness, was lying still and cold in the chamber above us. Mr. Cobden called on me as my friend, and addressed me, as you might suppose, with words of condolence. After a time he looked up and said: 'There are thousands of homes in England at this moment where wives, mothers, and children are dying of hunger. Now, when the first paroxysm of your



grief is past, I would advise you to come with me, and we will never rest till the Corn Law is repealed.' " From this time Mr. Cobden and Mr. Bright were intimate friends and powerful allies. In April, 1843, at a by-election, Mr. Bright stood as a candidate for Parliament for the city of Durham. He was defeated by Lord Dungannon, a Conservative and Protectionist, but Dungannon was unseated on petition, and at the election that followed Mr. Bright was returned by a majority of seventy-eight. He continued to represent Durham until 1847, when he was returned for Manchester. In 1857 his opposition to the wars with Russia (1854-'55) and China (1857) cost him his seat; but Birmingham immediately returned him and continued him until his death. He made his maiden speech in Parliament on Mr. Ewart's motion for extending the principles of free trade. As an orator, he was natural, earnest, and without artifice. His power lay in the use of pure English by a man imbued with a fervid enthusiasm for the cause he believed in, and his voice had such quiet yet resonant clearness that its bell-like tones reached the most distant hearer. He was always rather an advocate of the cause of the working classes than a systematic expounder of abstract principles of commercial economy. He proposed to apply the remedy of free trade in land to the state of things that produced the Irish famine. He appealed, unsuccessfully, for the dispatch of a royal commission to investigate the condition of India, and he was appointed one of a select committee of the House of Commons on official salaries. He co-operated with Mr. Cobden in the movement that he sought to create in favor of financial reform. In 1851 he voted with those who attempted to censure Lord Palmerston in the Pacifico affair, and in 1852 he took a prominent part in the welcome given to Kossuth by the advanced Liberals of Lancashire. On the formation of the first Derby ministry, Mr. Bright was prominent in that temporary re-organization of the Corn-Law League which the acceptance of free trade by the new Government rendered unnecessary. From 1847 to 1853 his speeches were on the condition of Ireland, disestablishment, and the land question. He held that an Englishman or an Irishman might discuss what form of government he chose to live under, and said that when the liberty of the subject was restricted by Government, measures should also be passed that secured his welfare. He opposed taxes on knowledge and restriction on the freedom of the press, brought in a bill for the repeal of the game laws, was warm in his advocacy of the removal of Jewish disabilities, and refused to yield to Lord John Russell's measures against the Roman Catholic Church. He bitterly, and almost alone, opposed the Crimean War. He opposed the whole Chinese policy of the Government and its policy in making India a part of the empire, and held that the day must come when India would separate from England. In 1858-'59 the Reform movement called out all Mr. Bright's energies. He spoke frequently in various cities, and denounced Mr. Disraeli and the Tories as excluding the working classes, who could not be much longer kept out of their natural rights. But while in this debate he declared himself in favor of "peace, retrenchment, and reform," he denied that he was antagonistic to the sovereign. Mr. Bright warmly supported Mr. Gladstone's course favoring Cobden's commercial treaty between France and England. He said the treaty was a spot of light in much European darkness, a great measure of justice to England, a great measure of friendship to France. Toward the close of the session in which this subject was discussed (1860) Mr. Bright made one of the longest and most powerful speeches he ever made in Parliament, in opposition to Lord Palmerston's proposition to strengthen the national defenses at enormous additional cost.

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Mr. Gladstone's measure for the repeal of the paper duty again found Mr. Bright in the front rank of its advocates, in favor, as always, of the rights of a free people and a free press. During the civil war in the United States, Mr. Bright was not only the firm friend of the National Government, from first to last (although financially a sufferer through the loss of Southern cotton, and a witness of the impoverishment from that cause in Lancashire), but some of his greatest speeches were made to defend what he called



JOHN BRIGHT'S BIRTHPLACE—GREENBANK.

"the only just war in the century." While Thomas Carlyle was exhibiting his astounding ignorance by such utterances as his "Ilias Americana in Nuce,"* and Englishmen of all degrees of prominence were expressing unfriendly sentiments, Mr. Bright was making in Parliament one of his most powerful pleas against the proposition of Mr. Roebuck for recognition of the Southern Confederacy. At the close, he implored the House that England "might not lift her hand or voice in aid of the most stupendous act of guilt that history had recorded in the annals of mankind." His energies were next exerted against the evils of the land and territorial system of England, in advocating the abolition of the death penalty, and arguing against the Permissive bill. He denounced the conduct of Governor Eyre in the Jamaica massacre, and was a member of the committee formed to prosecute him. The only time that voice and heart failed him was when he rose, after the death of Mr. Cobden, to pay tribute to his friend in the House. In broken tones, he said: "I little knew how much I loved him until I found that I had lost him," and sat down overcome. In 1865 Mr. Bright advocated an extension of the suffrage, and one of his longest and most memorable speeches was made when the Reform bill was again brought in by Mr. Gladstone. On this subject Mr. Bright labored with all his strength. With argument, wit, sarcasm—drawn often from "The Biglow Papers"—he pleaded the cause that was finally triumphant. In the course of the discussion some Liberals broke away from Mr. Gladstone, on which occasion Mr. Bright pronounced a eulogy upon him, in which he said: "Who is there in the House of Commons that equals him in knowledge of all political questions? Who equals him in earnestness? Who equals him in eloquence? Who equals him in courage and fidelity to his convictions? If these gentlemen who say they will not follow him have any one who is his equal, let them show him. If they can point out any statesman who can add dignity and grandeur to the stature of Mr. Gladstone, let them produce him." Among the causes for which Mr.

* Said Peter of the North to Paul of the South, 'You must not hire your workmen for life, but by the month, as I do.' Said Paul of the South to Peter of the North, 'I will hire my workmen as I please.' And they fell to fighting."

Bright had labored most earnestly was that of Ireland in its many phases, and, although he had a dislike of office and desired to "live among his own people," such pressure was brought upon him when Mr. Gladstone was made Prime Minister, that he accepted the presidency of the Board of Trade. The great Liberal leaders worked together for Irish Church disestablishment, and for the Irish land bill, until Mr. Gladstone's removal from office. When he was restored, Mr. Bright was made Chancellor of the Duchy Lancaster, and in 1881 he saw the Irish land bill passed. In 1882 he retired from office because he could not countenance the position of Gladstone and the Government in ordering the bombardment of Alexandria. He had always opposed the war with Egypt, and though it cost him deep sorrow, he did not falter in what he conceived his duty. The Reform Conference at Leeds brought him again before the public, and in favoring the bill he spoke strongly upon the necessity of curtailing the power of the House of Lords. In 1885 it became evident that Mr. Bright was parting from his old colleagues on other points. He declared against the enlargement of the empire, and pronounced the scheme of imperial federation "childish and absurd." A year later, when Mr. Gladstone brought in two important bills, one to secure home rule for Ireland and the other for land purchase, Mr. Bright dissented from the measures, but before his death he and Mr. Gladstone exchanged messages of friendship and esteem, and in the House of Commons Mr. Gladstone pronounced a fitting and beautiful eulogy upon him after he had passed away. Mr. Bright's body was followed by a large concourse of working people, as well as by representatives of other classes, to his grave in the Quaker burial-ground. His second wife had died several years before, but his seven children were by his bedside at "One Ash," the home of his later years. An estimate of the work that Mr. Bright accomplished can not be fairly made unless we remember that, great as it was, it was done in spite of a delicate constitution and repeated attacks of illness. He was several times compelled to seek a more genial climate. He was chosen Lord Rector of the University of Glasgow in November, 1880. His "Speeches on Questions of Public Policy" (2 vols.) were published in 1868, and his "Life and Speeches," with portraits of his contemporaries, by George B. Smith (5 vols.), in 1884.

Brinckmann, Johann Bernhard, Bishop of Münster, born near Münster, Feb. 4, 1813; died in Münster, April 24, 1889. He went through a course of theology, and in 1838 was ordained a priest. He was consecrated Bishop of Münster in 1870, and was one of the most combative of the prelates at the time of the Kulturkampf. Having been several times fined for contravention of the May laws, he was deprived of his office in 1875, and only escaped expulsion by voluntary exile. Retiring to a village in Holland, close to his diocese, he continued, it was said, to direct it secretly. He thus passed eight years and a half, and, after the revision of the May laws, was recalled with the other bishops.

Buckingham and Chandos, Richard Plantagenet Campbell Temple Nugent Brydges Chandos Grenville, Duke of, born Sept. 10, 1823; died March 25, 1889. He sat in the House of Commons as a Conservative from 1846 till 1857. In 1861 he succeeded to the family titles and estates. He was remarkably active and diligent in public affairs, holding the offices successively of Lord of the Treasury, Keeper of the Privy Seal, Lord President of the Privy Council, Secretary of State for the Colonies, and Governor of Madras. He left no male descendant, and by his death the titles to the dukedoms of Buckingham and Chandos and the earldom of Nugent in the Irish peerage became extinct, while that of Earl of Temple descends under certain restrictions to his nephew, William Stephen Gore-Langton.

Cabanel, Alexandre, a French painter, born in Montpellier, Sept. 28, 1823; died in Paris, July 23, 1889. He studied under Picot, and began exhibiting bibli-

cal paintings in 1844. His "Apotheosis of St. Louis," "Phedra," "Velleda," "Giacomina," "Thamar," and other works in their composition gave evidence of talent, but their roseate color and soft treatment, alike remote from the severity of the classical school and the naturalism of the younger painters, were the subject of a long critical controversy. Cabanel had many pupils, some of whom became his disciples, while others, like Bastien-Lepage, openly renounced his teachings. In 1855 his "Christian Martyr" gained the first-class medal. He was chosen Horace Vernet's successor in the Academy of Fine Arts. About 1861 he turned from historical subjects and devoted himself to portraits, becoming the favorite painter of the wealthy, being remarkably successful in fixing types of countenance, in arranging drapery, and in inducing his sitters with an air of aristocratic elegance. He received the medal of honor in 1865 for his portrait of Mme. de Ganay, and one of those awarded at the Exposition of 1878.

Cairolì, Benedetto, an Italian statesman, born in Groppello, near Pavia, Jan. 28, 1826; died near Naples, Aug. 8, 1889. His father, a surgeon, and several of his brothers lost their lives in the revolutionary campaign of 1848, in which he also took an active part as a conspirator and a volunteer, hastening from his studies in the University of Zürich to join the rising against the Austrians. In 1851 he went into exile, and resided in Piedmont till the time of the French intervention in 1859, when he took up arms again for the deliverance of his country, fighting as an officer of the Alpine Rifles. He was not one of those who rested with the results of the peace of Villafranca, but joined the thousand patriots who descended on Sicily in 1860 and attempted to rescue that province from Bourbon rule. Both he and his brother Enrico gained distinction at the battle of Calatufimi, and at the siege of Palermo he received a severe wound in the leg. Notwithstanding his wound, he accepted a mandate from the district of Brivio, in the province of Como, as a deputy in the first Italian Parliament, which was convoked at Naples on Feb. 18, 1861. Although not till several years later did he definitely take leave of his Republican principles to accept the constitutional monarchy, following the lead of his friend Dupretis, yet he voted enthusiastically on Feb. 26 for the decree inviting Victor Emanuel to accept the crown of the united kingdom of Italy. From that time, in the political arena and on the field of battle, Cairolì was one of the foremost champions of Italian independence. He bore arms in the Trentino in 1866 and at Monterotondo in 1867, and was at Garibaldi's disastrous defeat at Mentana. When the Left came into power in 1876, Cairolì had become a supporter of the monarchy as the guardian of liberty. When Parliament met on March 7, 1878, soon after the accession of Umberto to the throne, he was elected President of the Chamber, and a few days later, on the resignation of the Depretis ministry, he was invited to form a Cabinet. The new ministry, of which he was president without a portfolio, was composed mostly of men without ministerial experience, with Count Corti at the head of the Department of Foreign Affairs. When all the members resigned on Oct. 23, Cairolì was intrusted with the task of reconstituting the Cabinet. On Nov. 17, when the King and Queen, accompanied by the Prime Minister, were driving into Naples, Giovanni Passananti sprang at the carriage and attempted to stab King Umberto with a dagger. Cairolì threw himself forward and seized the knife, which only scratched the skin of the King, but made a deep gash in his own flesh. The Chambers joined in the gratitude of the King, the sovereigns and statesmen of other countries expressed their admiration for the deed, and the whole Italian nation exalted the brave minister. Yet ovations could not stay the fresh ministerial crisis that was precipitated by the event. The hostile coalition of parties that was formed was not directed against Cairolì, but against his colleagues, whom he refused to sacrifice. He declared against repressive measures that would

infringe on popular rights, saying, on Dec. 6, that "the poniard that sought the King's life must not reach liberty, of which the King is the most loyal and faithful defender." On Dec. 11 a motion of confidence in the domestic policy of the Government was lost by 257 votes against 183, and the ministers resigned. Six months later Cairoli was again called upon to take the direction of affairs from the hands of Depretis, but in November, 1879, he was compelled to modify his programme and receive Signor Depretis into his Cabinet as Minister of the Interior. The French treaty with Tunis caused a reaction against his foreign policy that bereft him henceforward of all political influence. The ministry resigned on May 14, 1881. For a time, with his faithful followers of the Extreme Left, he took part in the discussion of public works, withdrawing gradually from political life. Cairoli was one of the most unbending adversaries of the Vatican, yet even the clerical journals united with the rest of the Italian press in paying tribute to his lofty character.

Cambridge, Princess AUGUSTA WILHELMINA LOUISA, Duchess of, born July 25, 1797; died in London, England, April 6, 1889. She was the third daughter of the Landgrave Friedrich of Hesse-Cassel, and on May 7, 1818, married Prince Adolphus Frederick, Duke of Cambridge, seventh son of King George III of England and Queen Charlotte. In 1819 the duchess gave birth to a son, the present Duke of Cambridge, commander-in-chief of the British army. Her other children were the Princess Augusta, who in 1843 married the Grand-Duke of Mecklenburg-Strelitz, and the Princess Mary, born in Hanover in 1833, who in 1866 married the Prince and Duke of Teck. The Duke and Duchess of Cambridge resided at Kew after the return to England of the duke, who became popular there. He died in 1850.

Carteret, Antoine, a Swiss statesman, born in Geneva, April 2, 1813; died there, Jan. 28, 1889. He entered public life in 1840, sided with James Fazy as an antagonist of the Genevan aristocracy, and when Fazy countenanced the claims of the clergy when the religious question arose Carteret succeeded to the leadership of the Radical party. Although a Protestant of Huguenot descent, he was prominent in founding the Old Catholic Church in Switzerland simply as a weapon against Ultramontanism. It was he who chiefly carried on the contest with Bishop Mermillod that resulted in the expulsion of the prelate from Swiss soil. From 1870 till his death he was a member of the National Council almost without a break. The educational law of 1872 was drawn up by him, and the erection of the old Geneva Academy into a university was his work. Differences with his party led to his being displaced from the control of educational affairs four years before his death.

Cecil, Lord Adelbert Percy, an English evangelist, born in 1841; died in Canada in June, 1889. He was an officer in the British army till 1863, when he resigned, and as a missionary endeavored to spread the principles of the Protestant religion in various countries. He perished in the waters of Lake Ontario while crossing in a sail boat to Adolphustown, where he intended to hold meetings.

Champfleury, the pen-name of **Jules Hisson-Fleury**, a French novelist, born in Laon in 1821; died in Paris, Nov. 6, 1889. He was the author of a long list of novels and tales, in which were first exemplified the principles of the realistic school of fiction. He also published several works of erudition. Since 1872 he had been curator of the Sèvres porcelain collection.

Clesse, Antoine, a Belgian poet, born in the Hague, Holland, May 30, 1816; died in Mous, in March, 1889. He learned and followed the trade of a gunsmith in Mons. He wrote an epic poem, "Godefroid de Bouillon," which received a medal from the Hainaut Société des Lettres when he was twenty-three years old. But it was as a writer of songs that he became famous. His uncultured verses, for which he composed simple but expressive music, were animated by earnestness and sincerity of sentiment and popular and progress-

ive ideas, and placed him among the first of modern song-writers by reason of their freshness and force.

Croix, Lambert de Sainte, a French politician, born in 1827; died in Paris, Oct. 28, 1889. He was educated for the legal profession, but abandoned it to engage in political journalism as a supporter of the Orleans family, and became one of their most zealous champions and a formidable adversary of the power of Louis Napoleon. After the fall of the empire he was elected to the National Assembly, and was the promoter of the vote declaring the extinction of the empire. He aided efficiently in securing the return of the Orleans princes, was one of the most active of the Conservatives who forced Thiers to retire, labored to effect a reconciliation and union of interests between the two branches of the royal family, and was a consistent supporter of Marshal MacMahon, though he took no part in the attempt of May 16, 1877. He was elected to the Chamber in 1883, but not allowed to take his seat, and in 1889 he was an unsuccessful candidate. His splendid residence in Paris was the social rendezvous of the partisans of the Comte de Paris.

Crossley, John Thomas, English educator, born in 1800; died in Chelsea, April 29, 1889. He was a pupil of Joseph Lancaster, the pioneer in England of the monitorial system of teaching, and was selected by the British and Foreign School Society to be the master of the central school conducted by that method. He published the "Intellectual Calculator" and other school-books that came into general use, and after experimenting with the system of pupil-teaching that displaced the monitorial agency, and aiding in giving it a practical development, he retired about 1849.

Cucinello, Michele, an Italian dramatist, born in Naples about 1830; died there, April 15, 1889. His first play, "La Maschera di cera," was suggested by seeing the corpse of a girl in the Paris Morgue who had killed herself through unfortunate love. Ten years later he dramatized a romance of Walter Scott in "Clara di San Ronano," which was followed by the comedy of "Rembrandt in famiglia," successfully produced by Cesare Rossi. He subsequently wrote a long succession of dramas, some of which form part of the repertory of every Italian actor of note, including "Un capitano del secolo XV," "Pergolesi," "Margherita Sarocchi," "Spagnoletto," which were always greeted with unbounded enthusiasm when presented in Naples. After scoring one of his greatest successes with "Maria Giuditta Brancati," he ceased writing, and amused himself with collecting colored plaster figures, the products of a decayed Neapolitan art, an interesting group of which he presented to the Museum of San Martino.

Damala, Jacques, a French actor, born in the Piræus, Greece, about 1845; died in Paris, Aug. 17, 1889. He settled in Paris, and first appeared on the stage with Sarah Bernhardt, whom he afterward married, in "La Dame aux Camélias," pleasing the Parisians with his voice, form, and refinement. He subsequently created with great success the leading male parts in "Mères ennemis," by Catulle Mendès, and "Maître des forges."

Dechen, Heinrich von, a German geologist, born in Berlin, March 25, 1800; died in Bonn, Feb. 15, 1889. He was the son of a Prussian official, and prepared himself by studies at the Berlin University, followed by practical work in the Government offices at Bochum and Essen, for the mineralogical branch of the public service, and rose by regular promotion to be director of the Rhenish coal mines in 1841, and in 1860 to be chief of the Government mining service, resigning in the following year. He published geological maps of Central Europe and Germany, and one on a large scale of the Rhenish Province and Westphalia, and wrote a work explanatory of the last named (2 vols, 1870-'84) and one on the useful minerals of the German Empire (1873).

De la Rue, Warren, an English physicist, born on the island of Guernsey, Jan. 18, 1815; died in London, April 19, 1889. He was educated at the College of St. Barbe, Paris, and then entered the house of

Thomas de la Rue & Co., of which he became senior partner on the death of his father, and from which he retired in 1880. For many years he devoted himself chiefly to business, and he invented a machine for the manufacture of envelopes. About 1851 he became interested in celestial photography, and constructed a reflecting telescope with an aperture of 13 inches and a focal length of 10 feet, with which he took photographs of Jupiter and Saturn, that have not been surpassed. John Herschel said, if he could but once see the planet itself as beautifully defined as in Mr. De la Rue's picture of Saturn he could die content. His attention was attracted to lunar photography, and with improved apparatus he succeeded in taking pictures of the moon that have only been excelled by those of Lewis M. Rutherford, of New York. He also made photographs of the sun, and his success in this pursuit gained for him recognition as the father of lunar and solar photography. In 1860 he accompanied the "Himalaya" expedition to Spain and obtained a series of photographs of the solar eclipse of July 18. On his return he devised a micrometer for the measurements of the solar protuberances, and from his results he located three fiery prominences in the gaseous envelope surrounding the sun. His results were given in the Bakerian lecture before the Royal Society in 1862. He had set up his telescope at Cranford, near London, in 1857, but in 1873 he returned to the metropolis and then presented his instruments to the University of Oxford, where it was subsequently employed in determining by means of photography the distance of 61 Cygni and other fixed stars. In 1874 he fitted up a private physical laboratory, where, employing a battery of 15,000 chloride-of-silver cells, he carried on, with Dr. Hugo Müller, an elaborate series of researches on the electrical discharge. His results were presented in a brilliantly illustrated lecture before the Royal Institution in 1881, entitled "The Phenomena of the Electric Discharge." He was President of the Royal Astronomical Society in 1864-'66, of the Chemical Society in 1867 and 1879, and Secretary of the Royal Institution in 1878-'82. The results of his scientific work were presented to the Transactions of the Royal, the Chemical, Royal Astronomical, and other learned bodies; and with Balfour Stewart he published "Researches on Solar Physics."

Dorls, Camille, a French explorer, born in Bordes, Aveyron, in 1864; died in the Desert of Sahara early in 1889. He began his travels at the age of seventeen, visiting the West Indies and Central America. In 1885 and 1886 he studied the life and language of the Arabs in Morocco, and in December, 1886, set out from the Canary Islands in a boat for the coast, intending to explore unknown regions in the western Sahara. He was captured by the Moors and threatened with death, escaping only by professing Islamism and joining one of the tribes, with which he explored remote parts of the desert, as far south as the tropic of Cancer. Returning then to Zemmur, he passed along the coast from Cape Bojador to Cape Juby, and then reached Tindouff by way of Sagiuet-el-Amra, traversed Wad Houn and Sous, crossed the Great Atlas, and arrived at the city of Morocco, where he was imprisoned, but was delivered by the intervention of the British Minister. He returned to France in December, 1887, and in June, 1888, set out with the purpose of visiting Timbuctoo. In dress, appearance, manners, and language he could pass for an Arab; but in the countries that he traversed it was known that he was a Christian and a Frenchman. He had letters from the Shereef of Wazan to the Sheikh of Touat, and was murdered for his money by his guides midway between Aoulef and Akabli.

Elze, Karl, a German philologist, born in Dessau, May 23, 1820; died in Halle, Jan. 21, 1889. He studied classical philology in Leipsic and Berlin, and while engaged for thirty years as a teacher in the gymnasium at Dessau he devoted himself to the study of the English language and literature. In 1875 he was called to Halle as Professor of English. He pub-

lished biographies of Walter Scott (1864) and Byron (1870), translations of English poems, an elaborate investigation of the life of Shakespeare (1876), editions of early English plays, and one of "Hamlet," the second edition of which was written in English, and "Notes on Elizabethan Dramatists" (3 vols., Halle, 1880-'86), also in English. For many years he edited the "Shakspeare-Jahrbuch," the organ of the German Shakespeare Society.

Faidherbe, Louis Léon César, a French general, born in Lille in 1818; died in Paris, Sept. 29, 1889. He entered the military service in the corps of engineers, and served with credit for many years in Algeria. The military and colonial organization of Senegal, of which he was governor from 1857 till 1861, first made him famous. When the war of 1870 broke out he was regarded as a general who should be brought to the front; yet it was not till the taking of Sedan that he was sent for, when he was given the command of the Army of the North, which he led with illustrious ability. His most brilliant operation was the well-calculated victory over the Germans at Bapaume. The African climate and the fatigues of the campaign had undermined his health. When the war was over the Government offered him the Grand Chancellorship of the Legion of Honor as the only reward worthy of him. He was also made a Senator.

Formes, Karl, a German singer, born in Mühlheim on the Rhine, Aug. 7, 1810; died in San Francisco, Cal., Dec. 15, 1889. His voice first attracted attention at the concerts for the benefit of the Cathedral fund at Cologne in 1841, and on Jan. 6, 1842, he made his *début* in that city as Sarastro in "Die Zauberflöte." He first sang in London at Drury Lane, appearing as Sarastro, on May 30, 1849; and made his first appearance in Italian opera as Casper in "Il Franco Arciere" at Covent Garden, London, March 16, 1850. In 1857 he appeared with the Italian Opera Company at Castle Garden, New York, and at the Academy of Music. Subsequently he sang in German opera in Germany, England, and America, and settled in San Francisco in 1876. He appeared in New York for the last time at a Sunday evening concert at the Casino, in 1885. In quality of tone, compass, and power, Formes possessed one of the finest bass voices ever heard. Its range extended from C below the staff to the F above. He had a fine stage presence, and was a good actor.

Fustel de Coulanges, Numa, a French historian, born in Paris, March 18, 1830; died at Passy, near Paris, Sept. 12, 1889. After completing his collegiate course at the age of twenty he passed through the Normal School, and for many years was engaged as a teacher. In 1861 he was appointed Professor of History in the University of Strasburg, returning to Paris in 1870 as Master of Conferences in the Normal School. Till within two or three years of his death he lectured at the Sorbonne, attracting more enthusiastic students than any other professor. He made a philosophical and comparative study of ancient religious and political institutions. The "Cité antique" (1864) made his world-wide reputation. He was afterward engaged on a more elaborate work on the "History of the Political Institutions of Ancient France," in which he combats accepted opinions on various subjects. The first volume, dealing with the Roman Conquest and the Merovingian times, was published in 1875. In the same year the author became a member of the Academy of Moral and Political Sciences.

Ganglbauer, Celestin, Cardinal, Prince-Archbishop of Vienna, born in Thonstadten, Upper Austria, Aug. 20, 1817; died in Vienna in November, 1889. He was the son of a peasant, was educated for the Church, and not long after he was ordained priest in 1842 he became a professor in the Benedictine College at Kremsmünster, where he spent the greater part of his life. In 1875 he became prior, and in the following year abbot of the monastery. He signalized his entrance on this office by refusing to allow the Pope's health to be drunk, as was proposed by the papal nuncio Cardinal Jacobini, before that of the Emperor of Austria. Taking no part in politics, and seeking compromise

and conciliation in all difficulties and quarrels, he was a popular prelate, who was considered moderate and tolerant until very recently, when he identified himself with the agitation for restoring the temporal dominion of the Pope, taking the leading part in the Catholic Congress of 1889. He was raised to the metropolitan see, which does not carry with it the primacy, and is much less richly endowed than some others, in 1881, on the death of Archbishop Kutschker. The Emperor made him a privy counselor. Dr. Ganglbauer was an accomplished scholar. He was created a cardinal on Nov. 10, 1884.

Gavazzi, Alessandro, Italian clergyman, born in Bologna in 1809; died in Rome in January, 1889. After receiving holy orders he became Professor of Rhetoric at Naples, and subsequently occupied chairs in nearly all the large universities of Italy. When Pius IX was elected Pope in 1846, Father Gavazzi gave his public adhesion to the liberal and military movement that the Pontiff appeared to favor. When in 1848 the insurrection of Milan and the first defeat of the Austrians became known at Rome, he pronounced, at the invitation of the Pope, a funeral oration on the fallen patriots in the Pantheon. Pius IX nominated him chaplain-general of the forces that he raised, and when the Pope recalled his army Gavazzi did not return with them, but repaired to Florence, and devoted his talents to the revolutionary cause. He was brought a prisoner to Rome, but the Pope released him when the people rose to deliver him by force. He was elected chaplain-general of the Roman army, and during the period of the Revolutionary Government preached resistance to the last extremity. When the French entered Rome he went to England, where his virulent diatribes against the Papacy gave him a great reputation in ultra-Protestant circles. He gave anti-Catholic lectures in Scotland, in the United States, and in Canada, where he provoked riots. Garibaldi named him chaplain of his revolutionary legion. His last years were spent in Rome, where he was engaged in putting the last touches to his "Memoirs" and on a commentary on his discourses on the Roman question and the military law, which was suggested by Mancini.

Glyn, Miss, the stage name of Mrs. Isabella Dallas, whose maiden name was Kearns, born in Edinburgh, Scotland, in 1823; died in London, May 19, 1889. Her early inclination for the theatre was discountenanced by her Presbyterian father, but after her first marriage, to a Mr. Wills, while living in Paris she studied for the French stage. After her husband's death she went to London, and after some instruction from Charles Kemble, appeared with success as Lady Macbeth. She played the leading female parts in Shakespeare's plays, and other characters, distinguishing herself particularly as Cleopatra, and as Beatrice in "Much Ado about Nothing." After marrying E. S. Dallas, from whom she obtained a divorce in 1874, she appeared infrequently on the stage. In 1870 she made a tour in the United States. In her later life she gave readings from Shakespeare.

Gooch, Sir Daniel, an English engineer, born in Bedlington, Northumberland, in 1816; died near Windsor, Oct. 15, 1889. He served his apprenticeship under Robert Stephenson, and at the age of twenty-one was chosen locomotive superintendent of the Great Western Railroad, holding that appointment for twenty-seven years. He evolved the type of fast broad-gauge express engine that is still in use, and with the first of this class he obtained in 1846 as high a rate of speed as that of the engines of to-day, which are practically unaltered from his models. No engineer has studied so deeply the subjects of atmospheric pressure, internal friction, and rolling friction in their effect on railroad speed. He retired from the railroad in 1864 to devote himself to establishing telegraphic communication between England and America, for aiding in the accomplishment of which he was made a baronet, but he was recalled to take the chairmanship of the company, which he saved from bankruptcy. He sat in Parliament for twenty years.

Grivas, Demetrios, a Greek general, born in Nauplia, Aug. 20, 1829; died in Marseilles, France, in May, 1889. He was a son of Gen. Theodoros Grivas, a distinguished commander in the war for Hellenic independence, and himself acquired early distinction in the military career. In 1862 he led the revolutionary party in the National Assembly, and he was one of the chief actors in the insurrection of the fortress of Nauplia that resulted in the fall of the Bavarian dynasty in Greece. He was one of the three who went to Copenhagen to offer the crown to Georgios I. During the present reign he sat in nearly every Parliament, and displayed political ability and, as Minister of War, great capacity for organization.

Guilbert, A. V. François, Archbishop of Bordeaux, born in Cérisy-le-Forêt, Manche, in 1812; died in Gap, Aug. 15, 1889. He studied theology at Coutances, received priest's orders in 1836, and after teaching in the seminaries at Coutances and Muneville-sur-Mer, became superior of the Mortain Seminary in 1851, and founded the college of Valognes in 1853. He was appointed vicar-general of the Manche. He published "La divine synthèse," an exposition of the proofs of revealed religion, in 1864, and in 1867 was called to the See of Gap. While other clergymen threw the weight of their influence against the republic in the crisis of 1876-'77, he observed a neutral attitude, publishing in 1876 his pastoral letters on the subject of the priests' duty in politics. He was made an officer of the Legion of Honor in 1877, and the Government nominated him Bishop of Amiens in 1878. In 1883 he was appointed Archbishop of Bordeaux.

Gungl, Josef, a Hungarian musician, born in Zsámhék, Dec. 1, 1810; died in Weimar, Germany, Jan. 31, 1889. After studying music with Semann, he entered the Austrian army as an oboist, and soon became bandmaster. He gave concerts with his band in Germany until 1843, when he organized in Berlin an orchestra which he brought to the United States in 1849, but was not successful in this concert tour. In 1850 he was appointed Royal Prussian musical director, and in 1858 kapellmeister to an Austrian regiment. He removed to Munich in 1864, and settled in Frankfort-on-the-Main in 1876. He gave concerts throughout Europe with his orchestra, playing chiefly his own compositions. These number three hundred, and consist of marches and dance music, including many waltzes which achieved a popularity second only to those of Strauss.

Hall, Samuel Carter, an English author, born in Topsham, Devon, in 1801; died in London, March 18, 1889. He was educated for the bar, and became a reporter in the House of Commons, but was drawn into literary pursuits. In 1824 he married Anna Maria Fielding, his coadjutor in the many books that were published in their joint name. He became editor of the "New Monthly Magazine" in 1830, gave himself up to the popularization of art, and in 1839 established the "Art Journal," which he conducted till 1880. He was one of the founders of the Hospital for Consumptives, and other London charities. Among the illustrated publications of Mr. and Mrs. Hall were "Book of British Ballads," "Gems of the Galleries of Europe," and "Baronial Halls of England." Their principal work, written mainly by Mrs. Hall, was "Ireland: its Scenery, Character, etc." (3 vols., 1841-'43). He published illustrated catalogues of the international exhibitions of 1851, 1862, and 1867. In 1870 he issued a volume of "Memories of Great Men and Women of the Age," and in 1883 "The Retrospect of a Long Life." His wife, who died in 1881, was not less laborious, and even more distinguished than himself, especially through her sketches of life in Ireland. They produced nearly four hundred volumes. They were both public advocates of temperance.

Hamerling, Robert, an Austrian poet, born in Kirchberg, Lower Austria, March 24, 1830; died in Graz, July 13, 1889. He attended the gymnasium in Vienna while employed as a choir-boy, entered his name at the university in 1848, studying science, medicine, classical and Oriental philology, and philosophy, and

in 1855 became a professor in the gymnasium at Triest. His juvenile poetry appeared in a collection entitled "Sinnen und Minnen" (1859). In 1866 he was enabled to retire to Graz and devote himself entirely to his art. His poetry is characterized by profundity of thought, richness of imagery and description, vigorous and harmonious measures, and at times by bitter satirical reflections on the tendencies of the age. The names of his principal works are "Venus in Exil"; "Ein Schwanenlied der Romantik"; "Germanenzug"; the epic "Ahasver in Rom," which had a great success; "Der König von Sion" and "Die sieben Todsünden," two longer epics, conceived in the same spirit as the last; "Danton und Robespierre," a tragedy; "Lord Lucifer," a comedy; "Teut," a farcical comedy; a translation of the poems of Leopardi; "Aspasia," a romance of the time of Pericles; "Die Waldsängerin," a tale; "Amor und Psyche"; and the satirical epic entitled "Homunculus." "Ahasver in Rom" and "Der König von Sion" are classed by some among the finest German epics. "Stationen meiner Lebenspilgerschaft" is an autobiography (1889).

Hasenclever, Wilhelm, a German politician, born in Arnsberg in 1837; died in Berlin, July 3, 1889. He was a tanner, became a writer on political and philosophical subjects, published later a newspaper in Westphalia, and entered into the Social-Democratic movement inaugurated by Ferdinand and Lasalle. After the retirement of Baron von Schweitzer, he became the leader of the Moderate or Lasallian wing of the party, which united with the other in 1879. He was one of the chiefs of the party in the German Reichstag, where he sat for twenty years, until he became incapacitated by mental disease.

Hatch, Edwin, an English biblical scholar, born in 1834; died in Purleigh, Essex, Nov. 11, 1889. He was educated at Oxford, was president of a college in Canada for several years, and, returning to Oxford in 1867, became vice-principal of St. Mary Hall. In 1884 he was appointed reader in ecclesiastical history in Oxford, and he continued to fill that office while rector of Purleigh during the last four years of his life. His Bampton lectures, delivered in 1880, were translated into German. The Hibbert lectures for 1887 treat of the connection of early Christianity with Greek philosophy. He published a volume of essays on Biblical Greek (1889). The great work that formed the study of his life was a concordance of the Septuagint, which was passing through the press at the time of his death.

Henselt, Adolf von, a German musician, born in Schwabach, Bavaria, May 12, 1814; died in Warmbrunn, Silesia, Oct. 10, 1889. At the age of three years he was taken to Munich, where he studied the violin, but abandoned this instrument for the pianoforte, which he studied under Lasser, Geheimrathin, and Hummel. He is always regarded as a follower of the latter, although he had developed an original method before he went to Weimar. He studied harmony and counterpoint under Sechter. After playing in private circles in Berlin, Dresden, Weimar, and Jena, he made a short concert tour in Germany in 1837. In the following year he removed to St. Petersburg, having been made chamber pianist to the Empress. He was also appointed musical inspector in all the Government institutions for girls, and devoted the rest of his time to composition, teaching, and playing in society. He was nervous and diffident in facing an audience, so that he was not heard by the general public. His style is said to have been poetic and musical, and he excelled in playing extended chords and arpeggios. He was especially noted for his playing of Weber and Hummel. Among his compositions are a concerto for the piano-forte in F minor, op. 16, which for many years was considered the most difficult of all compositions for the pianoforte; two sets of twelve études, op. 2 and op. 5; a trio for pianoforte, violin, and violoncello; a number of *salon* pieces, including a Frühlingslied, Wiegenlied, impromptu in G minor, "La Gondola," etc.; an edition of Cramer's

études, with accompaniment of a second pianoforte; an arrangement for two pianofortes of Weber's duo for pianoforte and clarinet in E flat; transcription of Weber's overtures, and selections from his operas; and transcription of some of Beethoven's works.

Holtzendorff, Franz, Freiherr von, a German jurist, born in Vietmansdorf, Ukraine, Oct. 14, 1829; died in Munich, Feb. 5, 1889. He attended the gymnasium at Schulpforta, and from 1848 till 1852 the universities of Berlin, Heidelberg, and Bonn, and practiced for several years in the courts, returning in 1857 to the University of Berlin as *privat dozent*. In 1861 he was made an extraordinary professor, and taught criminal law and procedure, municipal law, the law of nations, and ecclesiastical law at different times. In 1873 he was named regular professor, and in the same year he accepted a call to the chair of Public Law in the University of Munich. He applied his learning to humane purposes. His earliest writings treated of prison reform, and he made several journeys to Ireland to observe the workings of the system of probation that was being tried there. He wrote on every kind of scientific reform of prison methods and discipline and of criminal law, dislodged by means of a fierce polemic a kind of Protestant missionary order that had usurped an undue control over the Prussian prison administration, and effected many improvements in the criminal and prison legislation. In 1861 he founded a "Journal of Criminal Law." He was the foremost advocate in Germany of the abolition of capital punishment. The annual congress of German jurists was originated by him. Holtzendorff's courageous devotion to the principles of justice impelled him to come forward as counsel for Count Harry Arnim. His writings cover every branch of jurisprudence and many of the political and social questions of the age, in which he took an independent and often an advanced position. He secured the co-operation of the chief jurists of Germany in preparing the "Encyclopädie der Rechtswissenschaft" (4th ed., 1882). The leading authorities on criminal law he united with himself in producing the "Handbuch des deutschen Strafrechts." With Prof. Virchow he edited a series of popular scientific lectures, and with the historian Oncken papers on questions of the time. His principal other works are "Handbuch des Völkerrechts" and "Handbuch des Gefängniswesens," written conjointly with M. von Jorgemann.

Howard, R. B., a Canadian physician, born in 1823; died in Montreal, March 28, 1889. He was educated for his profession at McGill University and in London and Paris. In 1856 he was appointed Professor of Clinical Medicine, and in 1860 succeeded to the chair of the Theory and Practice of Medicine at McGill. He had a large practice. His contributions to medical literature were numerous.

Hueffer, Francis, a German musical critic, born in Münster, in 1845; died in London, England, Jan. 19, 1889. He settled in London in 1869, and, winning reputation as an authority on music, became connected with various journals in the capacity of musical critic. From 1878 till the time of his death he held this post on the London "Times." His intellectual activity and scholarship aided in the recognition in England of Wagner, of whom he was an early champion. He was an editor of the short-lived "Musical Review," of the "Academy," and recently of the "Musical World," and contributed articles on his specialty to the "Encyclopædia Britannica" (9th ed.). Mr. Hueffer made extensive research into Provençal music and literature, and published a critical edition of the works of Guillem de Cabestanh, which brought him the degree of Ph. D. from Göttingen. He was the author of "Richard Wagner and the Music of the Future" (London, 1874); "The Troubadours" (1878); "Biography of Richard Wagner" in "The Great Musician Series," which he edited (1881); "Musical Studies" (1880; in Italian, Milan, 1883); "Italian and other Studies" (1883); an English translation of the Liszt-Wagner correspondence, with an introduction (1888); and "Thirty Years of Music in Eng-

land (1889). Mr. Hueffer also wrote the text for Dr. A. C. Mackenzie's cantata "Colomba" (1883); his "Troubadour" (1886); and F. H. Cowen's "Sleeping Beauty" (1884).

Jaures, Constant, French Minister of Marine, born in Albi, Feb. 3, 1823; died in Paris, March 14, 1889. He was educated at the naval school at Brest in 1841, and became an ensign in 1845, lieutenant in 1850, commander in 1861, and captain in 1869, having served in the Crimean, Italian, and Chinese wars, and in the campaigns in Cochinchina and Mexico. Placing himself at the disposition of the Ministry of War in November, 1870, he was appointed a brigadier-general and commanded the Twenty-first Army Corps till March, 1871, in the operations on the Loire and in the departments of Sarthe and Mayenne, taking 12,000 prisoners at Mamers, and distinguishing himself by his strategy at Marchenoir, Vendôme, Bonnetable, Pont-de-gemmes, and Sillé-de-Guillaume. At the end of this severe and ably conducted campaign he was made a general of division on Jan. 16, 1871, and after the peace was promoted to the rank of rear-admiral. On July 2, 1871, he was elected to the National Assembly, where he took his seat in the Left Center. On Dec. 14, 1875, at the elections of irremovable Senators, he was given a life seat in the Senate. On Feb. 25, 1876, he was appointed second commander of the Mediterranean squadron, and in April commanded the French detachment of vessels that appeared before Saloniki in a joint naval demonstration with Germany to exact satisfaction for the murder of the consuls. On Sept. 5, 1877, he was made a commander of the Legion of Honor. He was promoted vice-admiral on Oct. 31, 1878, and on Dec. 12 of that year was named minister to Spain. He acquired an excellent reputation as a diplomatist, and subsequently filled the post of minister at St. Petersburg. He had not long been a member of the Tirard Cabinet when he was stricken with apoplexy.

Johannes, Negus of Abyssinia, born about 1830; died March 13, 1889. He first became known to Europeans in 1867 as Degiac Kassai, Governor of Tigre. In 1868 he declared his independence, and assumed the title of Lord of the Ethiopian Chiefs. When Lord Napier began his march against the Negus Theodore in 1868 he secured a promise of neutrality from Kassai, and in recompense for his benevolent neutrality he was richly provided with arms and powder by the English. On the death of Theodore the first candidate for the throne to take up arms was Gobesieh, who marched into Tigre, where Kassai with 12,000 warriors routed five times that number. A year later, on Jan. 21, 1872, he had himself crowned by a Coptic bishop from Egypt. In the campaign against the Egyptians, under Munzinger Pasha, the Negus displayed his military genius in brilliant fashion, enticing the enemy into the valley of Guddi Guddi, where the entire army was annihilated on Nov. 17 and 18, 1875. A second Egyptian army under Prince Hassan was defeated on March 7, 1876, after a sanguinary battle at Gura. After this victory Menelek of Shoa, who disputed the throne with Johannes, made his submission, appearing at the Ethiopian court with a block bound to his neck, which Johannes, with a show of great magnanimity that had its origin in well-calculated motives, took off, and with his own crown crowned his contrite rival as King of Shoa. The same manner of proceeding was followed in the case of the other rebellious vassals. The last year of his life showed that their fidelity lasted only till fortune deserted him and his reputation for invincibility began to fail. The campaign of the Negus against the Italians failed because, remembering the fate of Hassan's army, they refused to be drawn out of their fortifications, and the Abyssinians had no effective siege ordnance. The Soudanese dervishes devastated the borders and sacked the towns of Abyssinia. Menelek, who had extended his dominion in the Galla country, rebelled, and the power of Johannes was sinking when he fell in a battle with the dervishes.

Joule, James Prescott, an English physicist, born in Salford, England, Dec. 14, 1818; died in Sale, near Manchester, Oct. 11, 1889. He was the son of a brewer, and at the age of fifteen began work in the brewery, which ultimately passed entirely into the control of himself and elder brother, and was conducted by them until sold in 1854. He became deeply interested in physical apparatus, and constructed various electrical appliances, including a cylinder electric machine, of which he published a description. Increasing his supply of apparatus, chiefly of his making, he soon entered the ranks of scientists as an investigator, and original papers followed one another in quick succession. The Royal Society list contains the titles of nearly one hundred papers due to him, exclusive of over twenty memoirs detailing researches undertaken by him, conjointly with Sir William Thomson, Sir Lyon Playfair, and others. His first investigation was on magnetism, in 1838, when, after constructing electro-magnetic machines and electro-magnets of novel form, he obtained important results in the theory of electro-magnetism. In 1840 he determined the value of the limit to the magnetization communicable to soft iron by the electric current. He also investigated the relative values of solid iron cores for the electro-magnetic machine, as compared with bundles of iron wire, and, applying the principles that he had discovered, he proceeded to the construction of electro-magnets of much greater lifting power than any previously made, while he studied the methods of modifying the distribution of the force in the magnetic field. The adoption as the unit quantity of electricity of the quantity required to decompose nine grains of water (nine being the atomic weight of water, according to the chemical nomenclature then in use) was first suggested by him. Similar investigations in magnetism and electricity occupied his attention during 1841-42, leading to the announcement in January, 1843, that he was able by the magneto-electric machine to convert mechanical power into heat. At the meeting of the British Association in August, 1843, he read a paper "On the Calorific Effects of Magneto-Electricity and on the Mechanical Value of Heat," in which he gave an account of his experiments proving that heat is generated by the magneto-electric machine. This investigation was conducted in order to determine whether a constant ratio exists between the heat generated and the mechanical power used in its production. It was the first determination of the dynamical equivalent of heat. Thereafter he continued his researches in this direction, devising improved apparatus and adding to the law which he had discovered. In 1847 he read a paper "On the Mechanical Equivalent of Heat" before the British Association, which led many of the first scientists in England to accept his views to which they had at that time not given full adherence. In conjunction with Sir William Thomson, he studied the thermal effects experienced by air rushing through small apertures, and later the thermal effects of fluids in motion, and on the heat acquired by bodies moving rapidly through the air. The phenomena of shooting-stars was explained by him in 1847. Papers on the electrolysis of liquids, on the constitution of gases, and the heat and constitution of elastic fluids followed. He contributed largely to the development of the theory of the velocity of sound, determining the specific heat of air, pressure, constant, and other data. He introduced many original and improved forms of physical instruments that have been adopted. In 1852 he received the gold Royal medal of the Royal Society, in 1870 the Copley gold medal of the Royal Society, and in 1880 he was awarded the Albert medal of the Society of Arts, "for having established, after most laborious research, the true relation between heat, electricity, and mechanical work, thus affording a sure guide in the application of science and industrial pursuits." In 1878 he received a pension of £200. His most valuable papers were published by the Physical Society of London in 1884 and 1887.

Kennedy, Benjamin Hall, an English philologist, born near Birmingham in 1804; died, April 6, 1889. He entered St. John's College, Cambridge, in 1823, and bore away all the principal classical prizes. He took his degree in 1827, and the next year was elected a fellow and appointed classical lecturer at his college. He became head master at Shrewsbury in 1836. For the thirty years that he was at the head of that school, he was the most successful classical teacher in England. On resigning in 1867 he was appointed Regius Professor of Greek at Cambridge and a canon of Ely Cathedral. He published a "Public-School Latin Grammar," and also Latin, Greek, and English poetry, translations from the Greek dramatists in verse, and from Plato. Dr. Kennedy was largely instrumental in securing the admission of women to degrees at Cambridge and the success of Girton and Newnham Colleges.

Knoedt, Franz Peter, a German theologian, born in Boppard, Nov. 6, 1811; died in Bonn, Jan. 27, 1889. He studied theology in Bonn and Tübingen, entered the Catholic seminary in Trier in 1833, and received priest's orders in 1835; was a chaplain for two years, and then teacher of religion in the Trier gymnasium till 1841. He resigned in order to seek the personal instruction of the theologian Anton Günther, with whom he passed three years in Vienna. He was then appointed an extraordinary professor, and in 1847 ordinary Professor of Philosophy at Bonn, filling this chair till his death. His theological views involved him in controversies with Cardinal von Geissel and other Ultramontane Catholics, and, after the condemnation by the Church of Günther's philosophy, his lecture room was almost deserted. After the dogma of infallibility was proclaimed in 1870, he became a leader in the Old Catholic movement, founded many parishes, and from 1878 till his death was vicar-general of his diocese. He published theological works.

Kraieffski, Andrei, a Russian journalist, born in Moscow in 1810; died in St. Petersburg in September, 1889. While yet a youth he had an office in the Moscow provincial government, and contributed to the "Westnik" periodical. He went to St. Petersburg, made a reputation by introducing Slavophile ideas in the journals of the capital, became one of the editors of the "Sovremennik" in 1837, and in 1839 purchased the "Sapisski," which, by the aid of the talents of the critic Belinski, became the first review in Russia. Foreseeing the rising importance of the daily press, he leased the "Vjedomosti," which he enlarged and improved, and when the lease expired, taking with him the staff and a large part of the advertising patronage, he founded the "Golos," for which he secured the services of the most brilliant and eminent Russian journalists and *littérateurs*. When it was finally suppressed by the order of Count Tolstoi, in February, 1883, on the ground of malicious opposition to the Government, Kraieffski retired.

Leclercq, Matthien, a Belgian jurist, born in Herve, Jan. 30, 1796; died in Brussels, March 16, 1889. He became a practicing lawyer at an early age, was a member of the National Congress that adopted the Constitution in 1830, and became procureur-général in the court of cassation, retaining the office till the legal age of retirement. In 1840 he entered the fourth Belgian Cabinet as Minister of Justice, and carried through important legislation. The ministry, though moderate in its Liberalism, incurred the hostility of the Clericals by its educational policy, and was defeated a year later. In 1847, when the Liberals again came into power, Leclercq was nominated minister to the Vatican; but the Pope refused at first to receive him, and, when he waived his objections, Leclercq would not recall his resignation.

Ledochowski, Mieczelas, Cardinal, formerly Archbishop of Gnesen-Posen, born in Gork, Oct. 29, 1822; died in Rome, Italy. He was the son of a Polish nobleman who emigrated when his party was vanquished in 1832. Educated in the Jesuit College of Nobles at Rome, the son was ordained priest in 1845, and a few years later went to South America. On

being expelled by the orders of Gen. Mosquera from Colombia, he was made an archbishop *in partibus*, appointed nuncio at Brussels in 1862, and in April, 1866, became Archbishop of Posen. He supported the Government in its conflict with the Polish Particularists, but fell into disfavor when he advocated the doctrine of papal infallibility at the council in Rome, and when he was rudely repelled by the Emperor, whose intervention he implored in behalf of the Pope after the entry of the Italian troops into Rome, he manifested his irritation on the first occasion. In contravention of the ministerial decree of 1873 enjoining the use of German, he ordered his priests to teach the catechism in German, and in the controversy that followed he was sustained by the Holy See. He was commanded to resign his functions, but resisted, and refused to pay the fines that were imposed under the May laws. His property was attached, and as that did not cover the amount he was sent to jail on Feb. 3, 1874, as an insolvent debtor, and three months later was deposed from his archiepiscopal functions. Pius IX retorted by making him a cardinal while he was still in prison. At the expiration of his sentence he took refuge in Rome, where the Pope gave him an asylum. When Herr von Schlözer, Prussian minister to the Vatican, negotiated with Leo X for a religious peace, he affected to consider Ledochowski as the chief obstacle; yet the Pope could not be brought either to remove him from the archbishopric or to send him away from the Vatican. Meanwhile the cardinal resigned his diocese into the hands of the Pope, and, when the basis of reconciliation with Prussia was reached, he left the Vatican to receive the lucrative appointment of secretary of apostolic briefs, which was understood as an implied dismissal, Dr. Dinders being appointed in his place as Archbishop of Posen.

Lewald, Fanny, a German novelist, born in Königsstadt, March 24, 1811; died in Dresden, Aug. 5, 1889. She was the daughter of a Jewish merchant, who consented to her embracing Christianity in 1828. She traveled with her father in Germany in 1832 and the succeeding years, and formed an unfortunate attachment, that was subsequently reflected in her writings. Her descriptions of the Baltic coast and its inhabitants were drawn from her observations during a prolonged residence in Dantzic. She made in 1845 her first journey to Italy, whence she drew the subjects of several novels, and there met the German scholar Adolf Stahr, whom she married in 1855. She afterward traveled much in England and other countries, and lived in Berlin, where her house was the center of a large intellectual circle. She was a leader in the movement for raising the status of women, and opening for them new fields of active employment, and in 1869 joined Jenny Hirsch in editing "Die Frauwelt," a journal devoted to women's rights. Her essay "Für und wider die Frauen" (1870) attracted wide attention to this subject. Fanny Lewald began to write for the public after 1840. Her principal novels are "Wandlungen" (1853); "Adèle" (1855); "Die Kammerjungfer" (1856); "Neue Romane" (1858); "Reisegefährten" (1858); "Mädchen von Hela" (1860); "Hausgenossen" (1864); "Nella" (1870); "Von Geschlecht zu Geschlecht" (1864-'68); "Erlöserin" (1873); "Benedikt" (1874); "Benvenuto" (1876); "Helmar" (1880); "Vater und Sohn" (1881); "Stella" (1883); and "Die Familie Dorner" (1887). In 1888 appeared a volume of reminiscences entitled "Zwölf Bilder aus dem Leben." Her autobiography was published in 1861 under the title of "Meine Lebensgeschichte."

Lightfoot, John Barber, an English theologian, born in Liverpool in 1828; died in Bournemouth, Dec. 21, 1889. He was educated at Cambridge, where he passed for his degree with the highest honors in 1851, became a fellow in 1852, and was subsequently a tutor. In 1861 he became Hulsean Professor of Divinity, and in 1875 Margaret Professor. He was examining chaplain to Dr. Tait (Bishop of London and afterward Archbishop of Canterbury), and was appointed a

canon of St. Paul's in 1871. With a degree of learning exceeding that of any other English clergyman, he combated the conclusions of the Tübingen school of biblical critics, and arrested the defection of English scholars from the old beliefs. In 1879 Dr. Lightfoot became the successor of Dr. Baring as Bishop of Durham. Among his publications were an edition of "St. Ignatius and St. Polycarp"; commentaries on St. Paul's epistles to the Galatians (1865), Philippians (1868), and to the Colossians and Philemon (1875); and a series of controversial essays in defense of revealed religion (1874-'77). He was influential in bringing about the revision of the translation of the New Testament, and had a share in the work.

Löwenstein, Baroness Sophie, an Austrian author, born in 1811; died in Vienna in May, 1889. She was a daughter of Archduke Karl's friend Von Kleyle, and was celebrated for her beauty and intellect, and for the passion that she inspired in the poet Lenau, who immortalized her in his poems addressed to "Sophie." She published a novel entitled "Unglückliche Ehe."

Luis I, King of Portugal, born Oct. 31, 1838; died in Cascaes, Oct. 19, 1889. He was a son of Queen Maria II da Gloria and Prince Ferdinand of Saxe-Coburg-Gotha, of the branch of the family that adopted the Catholic faith, his father having married the Princess of Kohary. In 1861 Dom Luis came unexpectedly to the throne through the sudden death (from typhus, cholera, or perhaps poison) of King Pedro V and two other brothers, while he and the Duke of Coimbra were permanently debilitated by the same mysterious malady. The political disturbances from which Portugal had suffered for nearly a century were not entirely allayed by the progressive rule of his father, the King-Regent, and for some time after his accession he was unable to form a stable Government, the last insurrection occurring in 1870, when the Duke of Saldanha forced his way into the palace with four battalions of soldiers, and by his threats forced the King to dismiss his Liberal Cabinet. Although he was quiet and retiring, devoted to literary and scientific studies, and devoid of the positive qualities of an ambitious ruler, Dom Luis conceived his public duties in a spirit of earnest patriotism, and by his diligent attention to affairs and his enlightened views and his wise and self-denying resolves did more than any other man to keep Portugal in the path of salutary progress. Gen. Prim, after the overthrow of Queen Isabella, pressed upon him the acceptance of the Spanish throne, but he was too patriotic to sacrifice his country's independence for personal and family ambition, although the inheritor of the Braganza blood and name only through the female line. Toward the restoration of the disabled finances of the Government he voluntarily relinquished a large part of the civil list. The public works that he promoted and the improvement in the finances and internal administration trebled the commerce in twenty-five years. The fleet and the army were reorganized and public instruction was developed, although the King was called upon to exercise a degree of combativeness and resolution that was not native to his character to withstand Clerical influences and machinations from within and without. The Republican movement he resisted with prudence without sacrificing popular liberties or throwing himself into the arms of the reactionaries. He cherished the hope of reviving the colonial greatness of Portugal, and through a long series of years promoted the explorations that had for their object the uniting of the Portuguese possessions on the east and west shores of Africa by a railroad and the economical development of one of the richest zones of the continent. In the numerous parliamentary and political crises that disturbed his reign he kept himself above the parties, and to this fact he owed his popularity. During his reign the finances were re-established, slavery in the colonies was abolished, church estates were sold, the kingdom was divided into departments, and passports were abolished. He resisted the pretensions of the priesthood at the begin-

ning of his reign, and the quarrel was renewed after his marriage with Maria Pia, the youngest daughter of Vittorio Emanuele, on Oct. 6, 1862. King Amadeo was not allowed by the clergy to stand godfather to his sister's child when a son and heir was born. In 1864-'65 the Portuguese Government forbade the bishops to promulgate the encyclicals of the Pope and the syllabus. Dom Luis was President of the Academy of Sciences in Lisbon, and kept himself informed of the progress in all fields of positive science and philosophical speculation, but took the keenest interest in geographical explorations, having in view fresh opportunities for Portugal in the sphere in which she won her past greatness and historical renown. He was also a man of artistic tastes, and as a literary scholar he produced a work of merit, a translation of several of the plays of Shakespeare, "Hamlet" appearing first in 1877 and the "Merchant of Venice" and "Richard III" in 1880. He is succeeded by his elder son, Carlos I, born in 1863.

MacDonald, John Cameron, an English journalist, born in Fort William, Scotland, in June, 1822; died near Croydon, Dec. 10, 1889. He became a reporter on the London "Times" at the age of twenty. In 1856 he became manager of the printing office of the paper, and on the retirement of Mowbray Morris he was made managing editor. As he was responsible for the publication of the forged Parnell letters, he worked indefatigably to gather evidence against the Irish leaders in the case before the special commission, until, in the autumn of 1889, his health broke down from the effects of exhaustive labor and chagrin.

Malmesbury, James Howard Harris, Earl of, an English statesman, born March 25, 1807; died May 17, 1889. He was graduated at Oxford in 1827, and traveled for several years. He entered politics in 1841, when, as Lord Fitzharris, he was elected to Parliament. In September of the same year he passed into the House of Peers as his father's successor. It was not till the Corn-Law crisis that he began to take an earnest part in politics, becoming one of the practical managers of the Tory party. Although his ignorance of history and politics, of the courtesies of debate, and even of grammar, was notorious, Lord Derby, his friend of long standing, made him Secretary for Foreign Affairs in the Cabinet that he formed in 1852, and in that office Lord Malmesbury was able to render a great service to his old personal friend, Louis Napoleon, by recognizing the French Empire while all the other governments of Europe were still hesitating. This act and other parts of the foreign policy of the Government were subjected to severe examination. It was Mr. Disraeli's financial schemes, however, that caused the fall of the Cabinet at the end of ten months, and when Lord Derby again formed a Cabinet in February, 1858, he called Lord Malmesbury to his old post. In this capacity he endeavored to avert the Italian war, but was charged by Lord Palmerston with unduly sustaining Austrian despotism, and in June, 1859, the Government was overthrown on this question. When Lord Derby became Prime Minister for the third time in 1866, he again offered Lord Malmesbury the Foreign Office, but the troublesome post was this time declined, and that of Lord Privy Seal accepted in its stead. This office he likewise held in the Disraeli ministries of 1868 and 1874, until 1876, when he resigned on account of deafness. In 1869 Lord Malmesbury made a series of vigorous speeches against the measure to create life peerages, which had the effect of defeating the bill by a majority of 106 to 77 votes in the House of Lords. Lord Malmesbury edited the "Diplomatic Journal and Correspondence" of his grandfather, the first Lord Malmesbury (London, 1844), and "The First Lord Malmesbury and his Friends: a Series of Letters from 1745 to 1820," and published "Memoirs of an ex-Minister" (1884).

Marie, Queen-Dowager of Bavaria, born in Berlin, Oct. 15, 1825; died in Hohenschwangau, May 17, 1889. She was the youngest daughter of Prince Wilhelm of Prussia, brother of King Friedrich Wilhelm III, and his wife, the Princess Maria Anna of Hesse-

Homburg. On Oct. 12, 1842, she married the Crown Prince Maximilian, who on the abdication of his father, Ludwig I, ascended the Bavarian throne on March 21, 1848. Her husband died in 1864, and her son Ludwig, then eighteen years old, became King. In 1874 the widowed Queen, who till then had adhered to the Protestant faith in which she was reared, publicly embraced Catholicism.

Marilley, Bishop, a Swiss ecclesiastic, born in Chatel St. Denis, Oct. 29, 1804; died in Freiburg, in January, 1889. He was educated in the Jesuit college at Freiburg, took priest's order on May 29, 1831, and was pastor and principal of the diocesan seminary at Geneva. When he was named city preacher in 1843 the Government opposed the selection, and expelled him from the canton. On Jan. 19, 1846, Gregory XVI nominated him Bishop of Geneva, and he was consecrated as such at Freiburg on March 15. In consequence of the conflict between him and the Radical Government of Geneva, he was arrested in the night of Oct. 25, 1848, and taken over the border of the canton Vaud, where he was confined in the Castle of Chillon for forty-seven days. On Oct. 30 Bern, Freiburg, Vaud, Neuchâtel, and Geneva decreed his removal from office and his banishment. When released from prison, he fixed his residence in Divonne, near the Swiss frontier, near Geneva. On May 18, 1855, the Radical Government of Freiburg rescinded the decree of banishment. He was likewise permitted to revisit Geneva. He was bishop of the diocese of Geneva till 1879, when he was discharged by the Pope. In 1883 he was advanced to the dignity of an archbishop *in partibus*.

Massai, Guglielmo, Cardinal, an Italian missionary, born in Pavia, near Asti, June 8, 1809; died near Naples, Aug. 5, 1889. He entered the order of Franciscan Capuchins after a brilliant university career, became a lecturer in theology, and when Gregory XVI committed to the Capuchins the task of spreading Catholic Christianity in Abyssinia, he departed in 1845 as the head of the mission, having been created titular Bishop of Casia and Vicar-Apostolic of Upper Ethiopia. He labored among the Gallas of Shoa. On the suspicion that he and his priests were spies and emissaries of ambitious European powers, the bishop was many times thrown into prison and threatened with death, and was expelled from the country eight times. After the last decree of banishment, he returned to Europe, and at the invitation of Leo XIII, recounted his thirty-five years of missionary work in a volume entitled "I miei trente cinque anni di missione nell' Alta Etiopia." He was made a cardinal on Nov. 10, 1884.

Mayer, Karl, a German politician, born in Esslingen, Sept. 9, 1819; died in Stuttgart, Oct. 14, 1889. He was a son of the poet Karl Mayer, Uhland's bosom friend. He attended the gymnasium at Heilbronn and Stuttgart, and studied law at Tübingen, where he consorted with a group of students who cherished democratic convictions. At the age of twenty-five he was elected to the Frankfort Parliament as a representative of the Württemberg People's party, of which he was the founder and leader, and he went with the Rump Parliament to Stuttgart, and into exile when the reaction finally triumphed. On being amnestied after ten years, he returned from Switzerland to Württemberg, and defended his ideas of a liberal and united German federation in the "Beobachter." He appealed to the south Germans to resist Prussian domination and militarism after Sadowa, and by his speeches and writings attained such popularity that King Karl once said: "I do not know whether I or whether Karl Mayer is King of Württemberg"; and this popularity was not lessened by his incarceration at Hohenasperg for having offended Count Bismarck. By an alliance with the Clericals, his party had a temporary success at the elections that were held after the desertion of the National Liberals by Prince Bismarck, and Mayer returned to public life for a season, being elected to the Reichstag in 1881 and again in 1884, but in 1887 he was defeated.

Meyer, H. A., a German naturalist, born in Hamburg, Sept. 10, 1822; died in Kiel, May 1, 1889. He was the son of a Hamburg manufacturer, and, after receiving a commercial training, he came to the United States, and established a branch concern, returning on his father's death in 1848 to assume the direction of the entire business. At the age of thirty-six he retired from mercantile life in order to devote himself to science; and after studying in Kiel and Berlin, he gave his attention to the study of the sea and marine life. His "Contribution on the Physics of the Ocean" gave him a wide reputation. He was placed at the head of the commission for the exploration of German seas in 1870, and devised apparatus and methods of investigation that have been copied in other countries. In 1877 and 1878 he was elected to the Reichstag.

Monaco, Charles III, Prince of, born Dec. 8, 1818; died near Laon, Sept. 11, 1889. He succeeded his father, Florestan I, June 20, 1856. His family, the Grimaldis, dates as a sovereign house from the tenth century. Two years after his accession the first stone was laid of the Casino of Monte Carlo, which, after the suppression of public gaming-tables in Germany, was almost the only open gambling resort in Europe. The revenues from this source enabled the prince to abolish all taxes in 1869 and to spend large sums in beautifying his small dominion of eight square miles and improving the condition of his 8,000 subjects. He was nearly blind during his later years, living in retirement in Paris and at the Chateau Marchais.

Monts, Count Alexander von, a German naval officer, born Aug. 9, 1832; died Jan. 19, 1889. Entering the navy as a midshipman at the age of seventeen, he distinguished himself on March 17, 1864, in a fight with the Danish squadron off Jasmund, having risen to the rank of lieutenant. He was commander of the "Grosser Kurfürst" when that frigate went down in the English Channel on May 31, 1878, and was the last man to leave the sinking ship. He was brought twice before a court-martial, and both tribunals acquitted him of blame for the loss of the vessel. He was promoted rear-admiral, and in 1883, when Gen. von Capri became Chief of the Admiralty, he was placed in command of the marine station on the North Sea, where he won the confidence of the Prince of Prussia, who, when he dismissed Gen. von Capri, after becoming Emperor, made Count Monts Admiral-in-Chief of the Navy in July, 1888, with provisional charge of the naval department of the Government pending its reorganization.

Murska, Irma de, a Hungarian singer, born in Budapest, Hungary, in 1843; died in Munich, Jan. 14, 1889. She was the daughter of an officer in the Austrian army. She made her *début* at the Pergola, Florence, in 1862, and sang in Budapest, Vienna, Berlin, and Hamburg until 1865, when she first appeared at Her Majesty's, London, on May 11 of that year as Lucia in Bellini's "Lucia di Lammermoor." She gave a new reading to this part—that of an impulsive and excited Lucia, whose madness in the great scene of the third act was wild, passionate, and flighty, and she sang the brilliant music with great skill. Between 1865 and 1873 she was engaged at Her Majesty's, Covent Garden, and Drury Lane, London, and traveled on the Continent between the opera seasons. In 1873-'79 she visited the United States, Cuba, and Australia, and appeared first in New York as Amina in "La Sonnambula" in October, 1873. She achieved peculiar success in portraying the fantastic, and her best parts of this class were: *Astrafiammenta*, in "Die Zauberflöte"; *Dinorah*, in "Le Pardon de Ploërmel"; and *Senta*, in "Der Fliegende Holländer." She was also successful as *Marguerite de Valois* in "Les Huguenots," as *Linda* in "Linda di Chamounix," and as *Ophelia* in Thomas's "Hamlet." Her voice was a light soprano of nearly three octaves' compass, and she sang the most elaborate and difficult phrases of ornamentation with taste, skill, and certainty. She possessed a remarkable memory, and frequently learned her part

by reading the notes while lying in bed. In 1887-'88 she taught vocal music in Mrs. Thurber's National Conservatory of Music, New York, and her last appearance in public in that city was at a concert at Chickering Hall, Dec. 29, 1887. She was married several times, once to Count Nugent.

Noiré, Ludwig, a German philosopher, born in Alzey, March 26, 1829; died in Mayence, March 26, 1889. He was for many years a teacher in the gymnasium at Mayence. His chief works are "Die Welt als Entwicklung des Geistes" (1874); "Der monistische Gedanke" (1875); "Die Doppelnatur der Causalität" (1876); "Einleitung und Begründung einer monistischen Erkenntnistheorie" (1877); "Ursprung der Sprache"; "Das Werkzeug und seine Bedeutung für die Entwicklungsgeschichte der Menschheit" (1880); "Logos" (1885); and "Die Entwicklung der abendländischen Philosophie bis zur 'Kritik der reinen Vernunft.'" In his philosophical system he sought to bring into harmony teachings of Spinoza, of Schopenhauer, and of modern natural science. Dr. Noiré was a practical teacher whose methods were celebrated. He was the author of French and Italian grammars and reading books for German learners.

Norquay, John, a Canadian statesman, born near Fort Garry, Manitoba, May 8, 1841; died in Winnipeg, July 5, 1889. He was of mixed Scotch and Indian parentage, and was educated at St. John's Academy, Red River Settlement. He secured the confidence of both the authorities and the half-breeds during the negotiations after the Red River Rebellion, and on the formation of the Government was elected to the first Manitoba Parliament in 1870. In December, 1871, he was appointed Minister of Public Works and Agriculture. He resigned in 1874, joined the Davis administration in 1875, and in May, 1876, was made Minister of Public Works. In October, 1878, he formed a ministry, becoming Premier and Colonial Treasurer. From 1874 till his death he sat in the Legislature, of which he was the only member that held a seat from the beginning. He continued at the head of the provincial administration for nearly ten years, resigning in January, 1888. He promoted the legislation on municipalities, drainage, and county courts. His vigorous railroad policy brought him into conflict with the Dominion Government. He represented the province on several delegations to the Federal Government at Ottawa, and secured the enlargement of its boundaries and an increase of the subsidy from the Dominion.

Ouseley, Frederick Arthur Gore, an English musician, born in London Aug. 12, 1825; died in Oxford, April 6, 1889. In 1844 he succeeded to the title of his father, Sir Gore Ouseley, who was an eminent Orientalist, and at one time ambassador to Persia, and afterward to St. Petersburg. At an early age the son exhibited musical talent, and in 1850 he received the degree of Mus. Bac. from Oxford, where he was graduated B. A. in 1846 and M. A. in 1849. In the latter year he took orders and officiated as curate in St. Paul's Church, Knightsbridge. In 1855 he became Professor of Music at Oxford, which office he held until the time of his death. In the same year he was ordained priest and appointed precentor of Hereford Cathedral. In 1856 he became vicar of St. Michael's, Tenbury, and warden of St. Michael's College, an institution for the training of choristers, to which he gave a large part of his private fortune. In 1855 Oxford gave him the degree of Mus. Doc., for which event his oratorio "St. Polycarp," was written and performed. At Oxford he effected several improvements. The office of choragus was re-established and the standard for qualifications for musical degrees was raised. He also persuaded the university to grant honorary degrees in music. Sir Frederick was a skilled pianist and organist; in his extemporaneous playing of fugues and themes in contrapuntal treatment he was unexcelled. His compositions are chiefly for the Church. He wrote eleven services, one with orchestral accompaniments; seventy anthems: preludes, fugues, and sonatas for the organ; two string-quartets; glees,

songs, and part-songs; and two oratorios, "Hagar," performed at the Hereford Festival in 1873 and at the Crystal Palace, London, in 1874, and "St. Polycarp," given at Oxford in 1855 and at the Hereford Festival in 1888. He also edited the works of Orlando Gibbons, and the English edition of Naaman's "History of Music," and was the author of treatises on music, including "A Treatise on Harmony" (Oxford, 1868, 3d ed., 1882); "Counterpoint, Canon, and Fugue," based on Cherubini's theories (1868; 2d ed., 1884); and "Musical Form and General Composition" (1875; 2d ed., 1886). He possessed one of the most valuable musical libraries in England.

Patti, Carlotta, an Italian musician, born in Florence in 1840; died in Paris, June 27, 1889. She was the daughter of Salvatore Patti, and the sister of Adeline and of Amalia Patti, who was married to Maurice Strakosch. Her early life was spent in America, and she was educated for a pianist by Henri Herz, but afterward gave her attention to singing. She made her *début* in New York at a concert in 1861, and also appeared in Italian opera, in which she was successful; but, owing to lameness, she was obliged to abandon the stage. She first appeared in London at a concert in Covent Garden, April 16, 1863. Subsequently she made concert tours on the Continent and in the United States. Her voice was a light soprano, of wide range, and of great facility in execution. On Sept. 3, 1879, she married Ernst de Munk, of Weimar, a violoncellist of reputation.

Pellegrini, Carlo, an Italian artist, born in Capua about 1830; died in London, Jan. 22, 1889. He fled from Naples after taking part in the unsuccessful rising under Garibaldi, and finally settled in London. In 1863 he began to contribute to "Punch" caricature portraits of eminent men, under the signature "Ape." These cartoons, which made the fortune of that journal, were continued till within a few months of his death.

Percy, John, an English metallurgist, born in Nottingham, England, March 23, 1817; died in London, June 19, 1889. He was graduated at the medical department of the University of Edinburgh in 1838, studied in the medical schools of Paris, and settled in Birmingham, where he became physician to the Queen's Hospital. He investigated the effect of alcohol on the animal economy, and in 1845 read before the British Association some "Contributions to the Chemistry of Diabetes." His attention was directed to the study of the chemical principles involved in metallurgical processes, and in 1851, when the Royal School of Mines was established, he was given the chair of Metallurgy, which he held until 1879. After settling in London, he abandoned the practice of medicine and devoted his leisure to technical research, taking special interest in the early development of photography. Dr. Percy also lectured on metallurgy to the advanced class of officers of the Royal Artillery, and for many years was Superintendent of Ventilation in the Houses of Parliament. In 1877 the Iron and Steel Institute conferred on him its Bessemer medal, and later he became president of that body. The Albert medal of the Society of Arts was awarded him two days before his death. His great work was the production of standard books on smelting. For more than a quarter of a century he directed all the metallurgical teaching in England, and nearly every English assayer of scientific reputation has been his pupil.

Peters, Karl, a German explorer, born in Neuhaus, Hanover, Sept. 27, 1856; died in Massailand in September, 1889. He studied in Tübingen, Göttingen, and Berlin, making solid acquisitions, in spite of dissipations, and obtaining the gold medal of the philosophical faculty at Berlin in 1877 for a historical dissertation. Falling heir to a fortune by the death of his uncle Engels, the writer on music, in London, he published a philosophical work entitled "Willenswelt und Weltwille" (Leipsic, 1883), and traveled over Europe for a time. He then threw himself into the colonization scheme, founded the Society for German Colonization, guided the aims of the society in

the direction of East Africa, and in 1884 led the expedition that acquired the German possessions in that part of the world, becoming President of the German East African Society. On April 6, 1887, he left Berlin for the second time to direct the colonial development of the new acquisition. His aggressive and ambitious nature involved his Government in difficulties with England, and made him many enemies in Germany as well as in Africa. In the same year he was called back to Germany. He afterward originated the idea of rescuing Emin Pasha, when nothing had been heard for a long time of the English expedition of Stanley. His object was to secure the Equatorial Province ruled by Emin for Germany. Therefore his expedition was obstructed in every way by the English in Africa, who endeavored to prevent his landing. His own Government declared the enterprise, with its political objects, to be positively mischievous, and hence, it was not surprising that when he penetrated into the country of the Somalis and Massais he encountered their hostility, and lost his life.

Pettenkofen, August von, an Austrian painter, born in Vienna in 1820; died there March 20, 1889. He studied art in the Vienna Academy, abandoned the profession, and served for a long time as an officer in the Austrian army, and then returned to art, producing at first drawings and lithographs. His paintings were sought for, and eagerly acquired by collectors in Paris, where he established himself in 1860. His pictures are small and finished with extreme care. His favorite subjects were taken from the life of Hungarian soldiers and peasants. Among his best productions are "Soldiers watching for a Spy," "Marauders," "Scene after a Duel," "Hungarian Village," "Gypsies Bathing," and the "Ambulance" and "Hungarian Volunteer" in the Vanderbilt gallery, New York, and a Hungarian "Market Scene" in the Walter collection, Baltimore.

Philippovich, Baron Josef, an Austrian general, born 1818; died in Prague, Aug. 5, 1889. He entered the army at the age of eighteen, and when he was forty-one he had attained the rank of major-general, bearing himself with distinction in the campaign of 1848-49 and in the Italian war of 1859. In the German war of 1866 he also served with honor. In 1878 he commanded the forces against the Bosnians, and by a brilliant strategic development captured their citadel of Sarajevo. After commanding the army of occupation for two years, he was restored to his former post as chief of the troops in Bohemia. The "Conqueror of Bosnia," as he was called, held the rank of *Feldzeugmeister*.

Plante, Gaston, a French electrician, born in Orthez, France, May 22, 1834; died in Paris, May 22, 1889. He was educated at the Conservatoire des Arts et Metiers in Paris, and became an assistant in the laboratory of the physicist Becquerel. Subsequently he entered the service of Christofle & Co. as a chemist, and then began his researches on the nature of electrical polarization. His greatest achievement was his investigations on the voltameter, which, in 1859, resulted in the invention of the storage battery. This research was begun for the purpose of studying the effects of electric discharges of great quantity, which were not obtainable with frictional machines and Leyden jars. He experimented upon all conceivable metals and combinations of metals to be used for electrodes in voltameters, and as the result of his tests found that lead was the best active material from a practical point of view, although the amount of energy that he found it possible to store to the unit of weight was greater in the case of some other metals. With the development of electricity for lighting came the appreciation of the great value of his discovery. He also invented an instrument which he called the "machine rheostatique." It was essentially a commutator, which on being turned by a crank rapidly changed the grouping of the secondary cells from parallel to series. His latest investigations were devoted to the reproduction of meteorological phenomena in the laboratory by electrical effects, and he

succeeded in this way in imitating hail, globular lightning, and similar phenomena. Although he conducted much original research, he never patented his discoveries, but freely gave them to the world. He received a *diplôme d'honneur* at the electrical exhibition in Paris in 1881, and his latest work, illustrated by apparatus and specimens, was shown at the World's Fair held in Paris this year. The Academy of Sciences gave him the Prix Lucaze, and the Society for the Encouragement of National Industries conferred on him its Ampère medal. The results of his investigations were communicated as separate papers to the Academy of Sciences, and these he issued collectively as "*Recherches sur l'Electricité*" in 1879. He also published "*Phénomènes Electriques de l'Atmosphère*" (1888). His property at Belleone, near Paris, is, in accordance with the terms of his will, to be converted into a home for indigent scientists. He also provided for the establishment of a biennial prize of 3,000 francs, to be awarded by the Academy of Sciences, for the discovery of some new fact or property of electricity.

Plunkett, Thomas Oliver Westenra, an Irish magistrate, born about 1835; died Dec. 6, 1889. He was a son of the twelfth Baron Louth. In the British army he served with distinction in the Crimean War and in the campaign in China. He was appointed a resident magistrate by Mr. Forster, and served in that capacity in Cork, Kerry, and Clare, accompanying Gen. Sir Redvers Buller in 1886, and assisting him to reorganize the constabulary for the suppression of moonlighting. In 1887 he carried out the evictions on the Ponsonby, Kingston, and O'Grady estates, and in reference to expected disturbances at Youghal sent the famous order, "Don't hesitate to shoot." At Mitchelstown three men were shot by the police not long afterward. In 1888 he suppressed disturbances at Middleton, Cork, and Youghal, and at the last-named place received a blow on the head that, in the opinion of his physician, caused the tumor on his brain from which he died a year later. Under Mr. Balfour's administration Capt. Plunkett, though nominally having control only of the southern division, was practically intrusted with the organization and direction of the whole constabulary department.

Pope, John Henry, a Canadian statesman, born in 1824; died about the middle of April, 1889. He entered public life in 1857 as a member of the Parliament of Upper Canada. When the Dominion was established in 1867 he was elected to the Federal House of Commons, of which he was continuously a member till his death. He was Minister of Agriculture in 1871-'73, and again from 1878 till 1885, and in the latter year he was transferred to the Ministry of Railroads and Canals, of which he had charge to the time of his death. He was guided by practical experience in administering the former department, being himself a large agriculturist. By quarantine regulations he checked the transit cattle trade from the Northwest of the United States, in order to promote the stock-raising and export interests of Canada. In 1880 he took part with Sir Charles Tupper and Sir John A. Macdonald in the negotiations in England that resulted in the formation of the Canada Pacific Railroad Company and the completion of the line.

Potocki, Count Alfred, an Austrian statesman, born in 1817; died in Paris, May 18, 1889. He was the possessor of one of the largest estates in Galicia, and of vast property in Russian Poland. Entering the Government service first as an *attaché* to the Austrian Embassy in London, he held a succession of employments and in 1867 entered the Cabinet as Minister of Agriculture. On April 12, 1870, he was appointed Prime Minister, and during his administration of eight months he tried the experiment that has been carried out with more success by Count Taafé of inducing the various Slav nationalities to reconcile their divergent interests and cast off the domination of the German element.

Quesada, Marshal, Marquis de Miravalles, a Spanish general, born in January, 1817; died in Madrid, Jan.

19, 1889. He entered the army when only twelve years old, and served with distinction in the Morocco campaign. He was a staunch supporter of the Bourbon dynasty, and was placed on the retired list after the abdication of Queen Isabella, but in 1875 was called into active service by King Alfonso, and, as commander-in-chief of the Army of the North, put a speedy termination in 1876 to the second Carlist war. Although a strong Conservative in his sympathies, and a Senator by right of his rank as captain-general in the army, he was not a party man. In the last Ministry of Canovas del Castillo he held for a short time the post of Minister of War. He was created a marquis by King Alfonso, and a grandee of Spain.

Quesneville, Gustave Augustin, a French chemist, born in Paris, Jan. 1, 1810; died there, Nov. 14, 1889. He was the son of a chemist, and studied under Louis N. Vauquelin and Michel E. Chevreul. In 1834 he received the degree of Doctor of Medicine, but soon entered the laboratory of Vauquelin. At that time chemistry and pharmacy were closely allied, and much of his work was in the preparation of medicinal compounds. His researches included investigations on the analytical separation of iron and manganese; preparation of binoxide of barium; of pure oxide of cobalt; of volatile chlorides; and of oxide of uranium with ammonia carbonate; combinations of chromic acid and silica; bismuth in large crystals; and the medical uses of oxygenated water. In 1840 he began the publication of the "*Revue Scientifique*," a monthly magazine devoted to theoretical and applied chemistry, of which he was editor, publisher, and manager. The name was changed in 1857 to "*Moniteur Scientifique*," and its publications under that title continued until December, 1889. A few weeks before his death he gave a banquet to his collaborators, in celebration of the half-centenary of the magazine, and announced his intention to discontinue its publication at the close of the year, being himself unequal to further efforts and unwilling to intrust it to other hands.

Reichenbach, Heinrich Gustav, a German botanist, born in Leipsic, Saxony, in 1822; died in Hamburg, May 6, 1889. He was a son of Heinrich G. L. Reichenbach, a distinguished botanist, and became professor of botany at Leipsic. During his early professional life he served as his father's assistant and aided him in the production of the later volumes of "*Icones Floræ Germanicæ et Helveticæ*." In 1862 he became Professor of Botany and Director of the Botanical Garden in Hamburg, which place he held until his death. His great life work was the study of orchids, in the knowledge of which he held the first rank. He became the accepted authority on all questions of nomenclature, and fresh specimens were constantly submitted to him for inspection. With the passion for the cultivation of orchids, the practice of hybridization has grown very largely, and the resulting hybrids were sent to Prof. Reichenbach to be compared with the parental forms from which they had been derived. While his analytical powers were greatly developed, his synthetic faculty was not so great, in consequence of which his rich stores of specimens still remain for his successor to collate.

Respighi, Lorenzo, an Italian astronomer, born in Busseto, Parma; died in Rome, early in December, 1889. He completed his studies in Paris, and taught astronomy in the University of Bologna, whence he was called by the Holy See to the University of Rome, in which he was continued as Professor of Astronomy by the Royal Government. He was also Director of the Astronomical Bureau at the Capitol. His writings on physics gave him a European reputation.

Ritschl, Albrecht, a German theologian, born March 22, 1822; died in Göttingen, March 20, 1889. He took degrees in the theological, philosophical, and juristic faculties, and became Professor of Christian Dogmatics at Göttingen. His most important works were "*Die christliche Lehre von der Rechtfertigung und der Versöhnung*" (Bonn, 1870); and "*Geschichte des Pietismus*" (1880).

Rosa, Carl August Nicholas, a German musician, born in Hamburg, March 22, 1843; died in Paris, April 30, 1889. He was educated at the Leipsic Conservatory for a violinist, and appeared at the Crystal Palace, London, March 10, 1866. After remaining in London a short time, he came to this country, and during a concert tour met Mme. Parepa, whom he married in New York, in February, 1867. Subsequently he formed an opera company, including Mme. Parepa-Rosa, Wachtel, Santley, Ronconi, and Formes, with which he traveled extensively and visited California. After Mme. Parepa-Rosa's death, he organized an English opera company in London, in 1875, which he conducted until the time of his death. Rosa's name was originally Rose, but he changed it to Rosa, in order to insure the correct pronunciation. He founded a scholarship of five thousand dollars in memory of Mme. Parepa-Rosa, in the Royal Academy of Music, London.

Rumpff, Karl, a German industrialist, born in Pymont in 1839; died in June, 1889. He was trained in business pursuits, and when a young man settled in New York city, where he founded a large drug business, with branches in Philadelphia and Boston. In 1865 he established at Albany the first aniline factory in the United States. Returning to Germany, he directed an establishment for making aniline colors at Elberfeld-Barmen, and also aided in developing the export trade in German pharmaceutical products. He acquired much popularity by devoting a part of his immense fortune to works of benevolence and public utility, and was a prominent member of the National Liberal party and a deputy in the Prussian Chamber.

Saltykoff, Michael, a Russian author, born in 1826; died in St. Petersburg, May 11, 1889. His satires and provincial sketches, published in the principal Russian reviews, gave him a place in the contemporary literature of the country. He was educated at the lyceum of Tsarskoe-Selo, and began his career in 1843. His papers appeared under the pen-name of "*Stechedrin*." The articles that he considered his best work were invariably suppressed by the censors, and at one time he published a piece of stupid nonsense, and explained at the end that it was a specimen of the only kind of writing that the authorities would allow to be printed.

Santos, Gen. Maximo, ex-President of Uruguay, born in 1848; died in Buenos Ayres, May 10, 1889. The former dictator of the republic was dreaded by the party in power even when he was in exile. He was the possessor of great wealth.

Scherer, Edmond, a French critic, born in Paris, April 8, 1815; died there, March 16, 1889. He was descended from a Swiss Protestant family, his father being a wealthy banker. After completing his course at the College Bourbon he pursued theological studies at Oxford and Strasburg, and in 1843 accepted the professorship of Exegesis at the École Évangélique in Geneva, where he also edited "*La Réformation au XIX Siècle*." His theological views having changed, he resigned his chair in 1850, became a leader in the liberal movement in French Protestant theology, and took up his residence at Versailles. When his friend Nefftzer founded the "*Temps*," about 1860, Scherer became the chief literary critic of the new republican paper, and after Nefftzer's death he acted for a time as editor-in-chief. During the occupation of Versailles by the German troops, Scherer was elected to the municipal council. On July 2, 1871, he was elected a member of the National Assembly, and took his seat, with the majority of his friends, in the Left Center, of which group he was for a time vice-president. He exerted considerable influence on the side of moderate republicanism. He caused embarrassment to the Clericals by taking to task the Duc de Broglie's Government for stopping a telegram that he had sent to the London "*Daily News*" pointing out the danger that France ran in keeping the war vessel "*Orenoque*" at Civita Vecchia. After aiding by his voice and his vote in the adoption of

the Constitution, he passed into the Senate in 1875 as a life member, and was always constant in attendance, though he seldom made a speech. He became greatly alarmed at the spread of democratic ideas in France and the tendency toward radical legislation, and in two pamphlets, one on democracy and one on revision, published just after Gambetta's accession to office, he wrote hopelessly of the condition and prospects of France. Scherer for many years wrote some of the principal articles for the "Temps," both on domestic and on foreign politics, besides conducting the critical department. His chief work, however, was concerned with literature and literary history and with philosophical questions. His first book was "Mélanges de critique religieuse" (1860). Other works on theological subjects were "Esquisse d'une théorie de l'Eglise chrétienne" and "La Critique et la foi." His seven volumes of "Études critiques sur la littérature contemporaine" were much read in other countries besides France.

Schwarzburg-Sondershausen, Günther, Prince of, born Sept. 24, 1801; died Sept. 15, 1889. After a reign of forty-five years he resigned the Government in 1880, on account of the infirmities of age, into the hands of his son, Prince Karl. Prince Günther granted a Constitution in 1841. Through the influence of his second wife, Princess Mathilde, whom he married in 1835 and divorced in 1852, he maintained for some time one of the best theatres in Germany and a famous orchestra.

Searle, Henry Ernest, an Australian oarsman, born in New South Wales, July 14, 1866, died in Melbourne, Dec. 9, 1889. He won his first race in January, 1888, and defeated the principal Australian scullers, including Kemp, the champion, in the same year, making the fastest time on record over a three-mile course in his match with Stansbury. In 1889 he went to England, and challenged all comers. On Sept. 9 he rowed against William O'Connor, of Toronto, for the championship of the world, over the course from Putney to Mortlake, on the Thames, winning with ease.

Sharp, Martin, an English journalist, born in Oxford in 1819; died in London, May 25, 1889. He was a writer on the Oxford "Herald," and was called to London in 1846 to assist in the editorship of the New High Church weekly, the "Guardian." When Montague Bernard returned to Oxford as Professor of International Law in 1859, Sharp became chief editor. Under his management the journal became the representative organ of the Church of England.

Shuvaloff, Count Peter, a Russian statesman, born in St. Petersburg, July 15, 1827; died there, March 22, 1889. He was aid-de-camp to the Czar Nicholas at the age of twenty-seven, and a general at thirty. In 1864-'66 he was governor-general of the Baltic provinces, and, instead of proceeding energetically to the Russification of the German institutions, as the Slavophiles expected, he incurred their enmity by his tolerant and conciliatory administration. The proselyting activity of Archbishop Platon was reproved by him, and he obtained a ukase from the emperor allowing parents, if they desired, to baptize the offsprings of mixed marriages in the Lutheran Church, and, in spite of the protests of Count Demitri Tolstoi, then Chief Procurator of the Holy Synod, one requiring conversions to the Orthodox Church to be investigated and approved by the civil authorities. He was recalled from Riga in 1866, and after the attempt on the Emperor's life, April 16, he was placed at the head of the gendarmerie and secret police. This responsible post, which he held eight years, made Shuvaloff the most powerful and influential man in Russia, who practically exercised the authority of a dictator. Yet in spite of his vigilance and activity the Nihilistic propaganda spread, and the revolutionists were able to perfect their organization. In 1873 he arranged the marriage between the only daughter of Alexander II and the Duke of Edinburgh, and smoothed the ruffled feelings of England by his explanation of the Russian advance in Turkistan. In 1874 the policy of Russia required the presence in London of a man of prudence and ability,

and Count Shuvaloff was selected for the post of ambassador at the court of St. James, where his coolness and diplomatic resources did much toward averting the threatened war with England in 1878 after the peace of San Stefano, not merely by pacifying the English Government, but by calming and restraining the Czar Alexander II, and persuading him to forego the advantages of the treaty wrung from the conquered Turks. He went as Russian plenipotentiary to the Congress of Berlin, and by his conciliatory attitude enabled the powers to come to a satisfactory conclusion. His pacific course cost him his popularity and political influence at home. Prince Gortchakoff, who was not entirely satisfied with the rôle that Shuvaloff had imposed upon Russia through his influence with the irresolute Czar, recalled him from London, and since then he took no part in public affairs.

Stoyanoff, Zacharia, a Bulgarian statesman, born near Pravadia, in the Varna district, in 1854; died in Sofia, Sept. 13, 1889. He left his home secretly to obtain an education in a Bulgarian school at Rustchuk, and while yet a youth developed a zealous activity on the revolutionary committees that aimed to free Bulgaria from the Turkish yoke. On the establishment of the Bulgarian Government he became an active supporter of the National party. The revolution of Philippopolis first brought him to the front. He broke away from his former party leaders, Zankoff and Karveloff, because one had become a partisan of Russia and the other had been unfaithful to Prince Alexander, and became one of the main props of the Regency, and later a faithful supporter of Prince Ferdinand. He was the leader of the National party, and was President of the Sobranje. Stoyanoff, notwithstanding his meager early education, was one of the foremost journalists of the country, the master of a lively, incisive style and of dialectical powers of a high order. The source of his culture was Russian literature, in which he was thoroughly read, although he had learned the language without an instructor. He had taught himself French also, and became the correspondent of French newspapers.

Tamberlik, Enrico, an Italian singer, born in Rome, March 16, 1820; died in Paris, March 15, 1889. He was educated for the operatic stage by Borgna and Guglielmi, and made his first appearance at the Teatro Fondo, Naples, in Bellini's "I Capuletti" in 1841. After singing in Lisbon, Madrid, and Barcelona, he went to London, and first appeared at the Royal Italian Opera, as Masaniello in Auber's "La Muette de Portici," April 4, 1850, and sang there continuously for twenty-four years. In 1857 he traveled in Russia, Spain, and North and South America, appearing with great success, and he sang in London again in 1870 and in 1877. His voice was a high tenor of richness and volume, and his C in alt was strong and clear. He was handsome, and was considered a good actor. His chief characters were: Otello, in Rossini's opera of that title; Florestan, in Beethoven's "Fidelis"; Manrico, in Verdi's "Trovatore"; John of Leyden, in Meyerbeer's "Prophete"; the Duke, in Verdi's "Rigoletto"; and Faust, in Gounod's opera. His latter years were spent in Madrid, where he was connected with a manufactory of firearms.

Taylor, Frederick, an English artist, born in Elstree in 1804; died in Hampstead, June 20, 1889. He began to exhibit water-colors in 1831, and from 1858 till 1871 he was President of the Water-Color Society. His aquarelles are landscapes with figures, and he was famous for hunting and hawking scenes, and especially for his drawings of horses and dogs.

Tchernicheffski, Nikolai Gavrilovich, a Russian Socialist, died in Moscow, Oct. 23, 1889. He was a disciple of Alexander Herzen, and after the banishment of his master became the leader of the Russian revolutionary party and chief disseminator of the German socialistic ideas that were developed by his successors into Russian Nihilism. In the period of the emancipation of the serfs he gave the majority of his countrymen their first knowledge of the theories of political economy prevailing in Germany, England, and

France. The system of John Stuart Mill he laid before the Russian people in a translation, and followed it out to conclusions not then accepted by that philosopher. The producers' and consumers' co-operative associations that German reformers had called into existence he recommended to the Russian industrial element for imitation, but only as the first step toward a higher development. The Russian agrarian question he proposed to solve on communistic principles. He demanded not only that the fields and pastures within the village bounds should be left to the cultivators without compensation to the landlords, but that the estates of the nobles should also be handed over to the communes free, to be held in common, and that the aristocracy and the standing army should be abolished. A vigorous expression of the popular will, he thought, would be enough to extort from the Government the reforms required by the conditions of the time without proceeding to revolution or the abolition of the Czarism. Tchernicheffski, between 1859 and 1862, was editor of the Radical monthly "Sovremennik" and the leading spirit of the St. Petersburg Chess Club, where the revolutionists resorted. Among his acquaintances he passed for a dull book-worm and an unpractical theorist, but he was dreaded by the Government as an ardent and influential political agitator, and the secret police watched for a pretext to lay hands on him. In 1862 he was arrested on the charge, believed by his friends to be false, of having issued a revolutionary proclamation to the peasants. After being kept in jail for several years, he was transported to eastern Siberia by decree of the Senate, and led the life of a political convict till he was pardoned in the beginning of 1889. During his long preliminary detention he wrote the socialistic novel, "Cto delati?" ("What shall we do?"), which was considered his chief work, and contained what was accepted as the positive programme of Russian socialism until more advanced ideas rose to the surface. The revolutionists were astonished that the Government censorship gave its *imprimatur* to such a book, though others recognized that it was too abstruse to be an effective political tract, while as a story it was excessive, wearisome, and devoid of human interest.

Tempel, William Ernest, a German astronomer, born in Nieder-Cunersdorf, Germany, Dec. 4, 1821; died in Arcetri, Italy, March 16, 1889. He was of humble parentage, and early acquired the art of lithography, which he followed with success in Germany. A desire for travel led him to Denmark, where he spent three years, and then he went to Italy, settling in Venice. Here he became interested in astronomy, and made his first discovery—the comet of 1859. In the same year he began a map of the Pleiades, in which in a short time were included six large stars and hundreds of smaller ones. This work included the discovery of the nebula of the Pleiades, which was at first strongly doubted, but whose existence has since been confirmed. In 1860 he removed to Marseilles, and in 1861 he served as an assistant in the observatory there, under Benjamin Valz. Returning to his profession, he continued in its practice until 1870, alternating his labors with astronomical research. During these years he discovered six small planets—Angelina (64), Maximiliana (65), Galatea (74), Eury-nome (79), previously discovered by James C. Watson, Terpsichore (81), and Clotho (97)—and the comets, 1860 IV, 1863 I, 1863 IV, 1864 II, 1866 I, 1867 I (with Stephan), 1867 II, 1869 II, 1869 III, and 1870 II (with Winnecke), for which he received several prizes from the Imperial Academy of Vienna. His finding of the burning comet of 1866 I was of special interest, as it explained the disappearance of comets, then not understood. The war between France and Germany caused his expulsion from Marseilles in 1871, and he became an assistant at the Royal Observatory of Brera at Milan. During the four years that followed, he discovered the comets 1871 II, 1871 V, 1871 VI, and 1873 II, besides which he observed and drew several other comets, particularly that of Coggia, which appeared in 1874, and was drawn by

him in a way that has never been excelled. Failing health led in 1875 to his acceptance of the charge of the new observatory of Arcetri, where he remained until his death. His last discovery of importance was the comet of 1877 V, but he continued his study of the nebulae, whose forms and details he represented in drawings, which are regarded as the most accurate ever made. This work gained for him in 1880 the prize which every six years is given by the Royal Academy for astronomical research.

Terziani, Eugenio, an Italian musician, born in Rome, in 1828; died there June 30, 1889. He studied at the Conservatory of Naples, and became Maestro di Cappella at the Apollo Theatre, Rome, and director of the orchestra at La Scala, Milan. In 1877 he returned to Rome, where he was Professor of Composition of the Music Lyceum and of the Cecilia Academy. His compositions include: "La Caduta di Gerico," oratorio (Naples, 1844); "Giovanna di Napoli," and "Alfredo," operas (Rome); "Niccolò di Lapi," opera (1883); and a requiem for Victor Emanuel.

Theresa Christina Maria, ex-Empress of Brazil, born in Naples, March 14, 1822; died in Oporto, Portugal, Dec. 28, 1889. She was the daughter of Francis I, King of the Two Sicilies, by his second marriage, with Maria Isabella, Infanta of Spain, and was married by procurator at Naples on May 30, and in person at Rio de Janeiro on Sept. 4, 1843, to Pedro II, Emperor of Brazil, who had personally assumed the government of the country three years before. They had two daughters, Isabel, who married Gaston, Comte d'Eu, Prince of Orleans-Bourbon, son of the Duc de Nemours, and Leopoldina, who died in 1871, the wife of Prince August of Saxe-Coburg. The Empress was deeply grieved at the Republican revolution that made herself and her family fugitives in a foreign land, and died soon after their arrival in Europe, as the result, in a large measure, of the distress and perturbation of mind incident to their escape.

Tolstoi, Count Dimitri Andreivich, a Russian statesman, born in the government of Ryazan in March, 1823; died in St. Petersburg, May 7, 1889. He was educated at the lyceum of Tsarskoe Selo, winning the golden medal at his graduation. In 1843 he entered official life, obtaining an appointment in the Empress's Bureau for Educational and Charitable Foundations. He wrote a history of Russian financial administration to the death of Catherine II, and in 1847, while holding employment in the department of ecclesiastical affairs in the Ministry of the Interior, he was commissioned by the Emperor to write a history of foreign confessions in Russia. In 1853 he was appointed bureau chief in the Ministry of Marine. For his work entitled "Le Catholicisme romain en Russie" the University of Leipsic gave him the honorary degree of Ph.D. He was transferred to the Ministry of Public Education in 1861, and in 1865 was appointed Procurator of the Holy Synod. In this post he improved the lot of the clergy, especially of the village popes, and modernized and infused new life into the ecclesiastical administration. He also reformed the clerical seminaries, introduced the method of voting in the local ecclesiastical administration, and uprooted the system of caste that separated the clergy from other classes and made it impossible for their children to follow any occupation except their own. Tolstoi's activity in this field won the sympathy of Russian society and the gratitude of the inferior clergy. On April 14, 1866, he was appointed Minister of Public Education, and in this capacity he carried out with iron resolution, in opposition to public opinion and in spite of the protests of the entire public press, except the Moscow "Gazette," a reconstruction of the system of higher education on a basis exclusively classical, nor did he rest till he had changed the curriculum of study from beginning to end. The effect of this great reform was the opposite of what was intended. He judged that scientific and practical studies and modern literature had drawn the educated people into irreligion and liberalism, and that the cultivation of the old humane letters would

restore the simple faith and loyalty that formerly prevailed. But his rigorous and sweeping changes not only imposed irksome tasks on the students and shut them from the knowledge for which they thirsted, they also dashed the professional hopes of many thousands who could not begin their education over again on the new system, and drove them forth from the universities and professional schools, desperate and ripe for revolutionary conspiracies. He accomplished a great deal for elementary education during the fourteen years of his ministry, increasing the number of intermediate schools from 220 to 620, and of primary schools from 1,005 to 24,853. When Count Loris Melikoff was called, at the height of the Nihilistic terror, to try the effect of leniency and concession, the reactionary Minister of Education had to retire. After the murder of Alexander II, Tolstoi was placed at the head of the Ministry of the Interior, in May, 1882. Supported by Katkoff and other defenders of autocracy and Old Russian ideas, he introduced a system of repression and tyranny that Russia had outgrown a century before, and set himself to work with restless energy and indomitable determination to undo all the great reforms of the reign of Alexander II. Beginning by suppressing every liberal and independent newspaper and organizing a system of police terrorism that shut every mouth, he was able by his press organs to bring a large section of the public to doubt and discredit the reforms of the last reign—even that of peasant emancipation, which no one was allowed to celebrate at the twenty-fifth anniversary. The interest that former ministers had shown in the peasants at the expense of the nobility he intended to reverse by rehabilitating the nobles and giving them control over the peasants again. His favorite project of destroying the *Zemstvos* by placing them under the dictation of the land-owning nobility was defeated, or at least delayed, by the opposition that it encountered in the Senate. Count Tolstoi was a voluminous writer, who published his dogmatic views and theories on the subjects that came before him in the several departments of public business in which he was employed. He was a thoroughgoing Slavophile and a friend of Katkoff, whose daughter married his only son. At the time of his death, besides being Minister of the Interior, he was a member of the Imperial Council, a Senator, Chief of the Gendarmerie and Political Police, President of the Academy of Sciences, Chairman of the Prison Committee and of the Committee on Charities, and a member of many learned and other societies.

Tun, Prince, of the Chinese imperial family, known as the Fifth Prince, died in Peking, April 14, 1889. He was the eldest surviving brother of the Emperor Hien Fung, and of the Princes Kung and Chun. He took no important part in the Government, his official post being that of President of the Court of the Imperial Clan, yet he exercised a large degree of influence by reason of his popularity. He affected poverty, living in a dilapidated palace and wearing wretched clothes, and was a great favorite of the people by reason of his honesty and his wit and good-nature. He was a supporter of the Conservative policy and a foe to all European innovations.

Tupper, Martin Farquhar, an English poet, born in London, July 17, 1810; died there, Nov. 29, 1889. He was a descendant of a German family that was expelled from Hesse-Cassel in 1548 by Charles V for Protestant opinions, and a son of an eminent London physician. His education was obtained at Charterhouse School and at Oxford, where he was graduated M. A. in 1835. He was called to the bar, but never practiced. In 1836 he published "Geraldine and other Poems" and the first half of "Proverbial Philosophy." This work was ridiculed by critics, and was not received favorably at first by the public, but it gradually became one of the most popular books that were ever printed, circulating to the extent of 100,000 copies in Great Britain and nearly 500,000 in the United States. It was lengthened into four series (1839-'67). Mr. Tupper was the author of many

other works in prose and verse. His "American Ballads" (1850) were intended to promote friendly feelings between Englishmen and Americans. He lectured in the United States in 1851 and 1876.

Ullbach, Louis, a French journalist, born in Troyes, March 7, 1822; died in Paris, March 16, 1889. He was educated in Paris, attracted the interest of Victor Hugo by a volume of poems that was published in 1844, and, after writing for Paris newspapers for several years, founded in Troyes in 1848 a political journal. A series of letters, signed "Jacques Souffrant," depicting the wrongs and hardships of the working class, led to his prosecution, on which occasion he was defended by Jules Favre and acquitted. He edited the "Révue de Paris" from 1853 till 1858. He established the Radical weekly "La Cloche" in 1868, and was imprisoned for six months in 1869. He was condemned in 1862 for complicity with the Commune, although he indignantly protested his opposition to the revolutionary government. He was the author of "Monsieur et Madame Fernel" and other novels.

Véron, Eugène, a French journalist, born in Paris in May, 1825; died in Sables d'Olonne, about June 1, 1889. He was educated at the École Normale, became a journalist, and devoted himself to aesthetics and philosophy. From its establishment in 1875 till the time of his death he was the editor of "L'Art." Among his published works the most noteworthy are "Esthétique," "Histoire naturelle des religions," and "La Troisième invasion."

Warsberg, Alexander, Freiherr von, born in 1836; died in Venice, May 28, 1889. He was employed in the Austrian Administration at Venice in 1859, held various posts in the state service, and in 1887 returned to Venice as Austro-Hungarian Consul. His best-known books are "Ein Sommer im Orient" (Vienna, 1869); "Odysseischen Landschaften" (1878); and "Homerische Landschaften" (1884).

Wood, John George, an English naturalist, born in London in 1827; died in Coventry, March 3, 1889. He was educated at Merton College, Oxford, and became a clergyman in the Church of England. He was the author of many popular books of natural history, the best known of which are "Common Objects of the Seashore," "My Feathered Friends," "Homes without Hands," and "Garden Friends and Foes."

OHIO, a Central Western State, admitted to the Union in 1803; area, 39,964 square miles; population, according to the last decennial census (1880), 3,190,062; capital, Columbus.

Government. The following were the State officers during the year: Governor, Joseph B. Foraker, Republican; Lieutenant-Governor, William C. Lyon; Secretary of State, Daniel J. Ryan; Auditor of State, Ebenezer W. Poe; Treasurer of State, John C. Brown; Attorney-General, David K. Watson; Board of Public Works, William M. Hahn, C. A. Fliekinger, Wells S. Jones; Commissioner of Common Schools, John Hancoek; Judges of the Supreme Court, Joseph P. Bradley, Franklin J. Diekman, Thaddeus A. Minshall, William T. Spear, Marshall J. Williams.

Finances.—At the close of the fiscal year 1888 there was a cash balance in the treasury of \$119,725.50. The receipts during the year amounted to \$5,947,905.10, and the disbursements to \$5,685,970.73, leaving a cash balance in the treasury, Nov. 15, 1889, of \$381,659.87. This amount stood: Credited to general revenue, \$22,363.88; sinking fund, \$245,040.45; common-school fund, \$114,255.54. The taxable value of realty in 1889 was \$1,213,645,052; of personalty, \$540,552,292. The State tax was returned as \$4,734,010.99, and the total taxes \$35,974,234.28. This total is exclusive of the per capita tax on dogs, which amounted to \$202,457. The funded debt was reduced

during the year \$250,000, leaving the public funded debt, on Nov. 15, at \$2,796,665, payable in annual installments until July, \$1,900 at 3 per cent. interest. In addition the irreducible State debt (trust funds for school purposes) is \$4,584,180.50. There was a net increase of local indebtedness of \$3,448,097.23. The State tax-rate for 1889 was 2 $\frac{7}{10}$ mills.

Railroads.—The returns to the Board of Equalization of railroad property show the mileage of railroads within the State to be: Main track, 7,383 miles; second track, 575 miles; branches, 351 miles; side track, 2,203 miles.

Banks.—The number of national banks in the State was 223, with an aggregate capital stock of \$39,828,825; surplus, \$10,075,882; undivided profits, \$1,916,289; total or actual value, \$35,114,239. Banks organized under State laws, 47, with capital stock, \$3,111,000; surplus, \$420,486; undivided profits, \$188,625; total, or actual value, \$3,666,511.

Education.—The number of youth of school age (between six and twenty-one years) was 1,120,536. The payments from the State common-school fund based on that enumeration aggregated \$1,700,884.75.

Legislature.—The adjourned session of the sixty-eighth General Assembly opened on Jan. 8, and the final adjournment was on April 15. The number of bills passed was unusually large, but few of them were of general importance. Among the new laws enacted were the following:

To suppress bucket shops and gambling in stocks, bonds, petroleum, cotton, grain, provisions, and other produce.

To prevent the wasting of natural gas.

To prohibit the manufacture or sale of adulterated wines.

To define and punish the crime of riotous conspiracy (designed for the suppression of White Cap organizations).

Amending the compulsory education law, to make it more effective.

Amending the election laws, to prevent loitering around the polling places or the distribution of tickets by unauthorized persons on the day of election.

Constitutional Amendments.—The Legislature provided for the submission to the electors at the November election of three proposed amendments to the Constitution: No. 1 changed the system of levying taxes, giving the General Assembly power to levy taxes with no other restriction than that "taxes shall be uniform on the same class of subjects," and retaining the exemption exceptions of the Constitution. No. 2 provided for legislative single districts, every county being entitled to at least one representative, and the more populous counties being divided into districts with one representative each. No. 3 provided for biennial elections and the holding of local elections in November instead of in April. The Constitution requires a majority of all the votes cast at the election to secure the passage of a constitutional amendment.

At the election held in November the taxation amendment received 245,438 votes, against 273,268 negative. The single-district amendment received 245,444 yeas and 259,420 nays. Those two amendments were therefore clearly defeated. The biennial-elections amendment received 257,662 yeas and 254,215 nays, which was a majority

of votes cast on the proposition, but not a majority of the total vote given for members of the General Assembly, which was 780,304. The question was raised that a majority of the votes cast on the amendment was sufficient. The case was taken to the Supreme Court, which decided that the proposition was defeated, not having received a majority of all the votes cast at the election.

Political.—The Republican State Convention met at Columbus, June 25, and was in session two days. Joseph B. Foraker was nominated for Governor on the second ballot, it being his fourth consecutive nomination for that office, and for a third term Elbert L. Lampson was nominated for Lieutenant-Governor. For the other offices to be filled the incumbents were renominated. The platform reaffirmed the adherence of the party to the principle of protection, approved the administration of President Harrison, favored the passage by Congress of "a proper and equitable service-pension bill for all honorably discharged Union soldiers and seamen of the late war," and approved the wool schedule of the Senate tariff bill, the administration of Gov. Foraker, and the course of the Legislature.

The Democratic State Convention was held at Columbus, Aug. 28. James E. Campbell was nominated for Governor on the second ballot, and William V. Marquis for Lieutenant-Governor. The other places were filled on a single ballot each. The platform declared the purpose of the party to "continue the battle for tariff reform until the cause of the people is triumphant"; demanded the repeal of all tariff taxes that enable trusts to "extort from the people exorbitant prices for the products they control"; favored "just, liberal, and equitable pension laws"; denounced the Republican National and State administrations; and demanded home rule for Ohio, and laws that will enable the cities to "choose their own servants and control their own affairs."

The Prohibition and Union Labor parties also held State conventions and put full tickets in the field.

The canvass was exciting and exceedingly bitter between the leading candidates for Governor. Charges and countercharges of a personal nature were made in the speeches of the two candidates. The result was the election of the Democratic candidate for Governor, a contested election of the Republican candidate for Lieutenant-Governor (who was afterward unseated by the Senate, and his Democratic competitor given the place), and the election of all the other Republican candidates. The votes as returned were as follow: Governor—Joseph B. Foraker, 368,551; James E. Campbell, 379,423; J. B. Helwig, Prohibition, 26,504; J. H. Rhodes, Union Labor, 1,048. Lieutenant-Governor—Elbert L. Lampson, Republican, 375,090; William V. Marquis, Democrat, 375,068; Lambertis B. Logan, Prohibition, 26,587; Francis L. Rice, Union Labor, 1,120. Attorney-General—David K. Watson, R., 377,140; Jesse M. Lewis, D., 373,335; E. J. Pinney, P., 26,439; William Baker, U. L., 1,140. Judge of Supreme Court—Franklin J. Dickman, R., 376,649; Martin D. Follett, D., 373,893; Gideon T. Stewart, P., 26,638; Jesse M. Johnson, U. L., 1,062. Member of Board of Public Works—William M. Hahn, R., 377,059; Frank Reynolds, D., 372,659; Harvey Clark, P., 26,641; Oswald Dietz, U. L., 1,727.

Commissioner of Common Schools—John Hancock, R., 377,107; Charles C. Miller, D., 373,391; Frank C. Fuson, P., 26,555; T. Elliot Tate, U. L., 1,059. Clerk of Supreme Court—Urban H. Hester, R., 377,021; Israel J. C. Shumaker, D., 373,453; Henry D. McKnight, P., 26,605; Gilbert A. Perinc, U. L., 1,045. A Legislature was also elected, the Senate standing 19 Democrats and 17 Republicans, and the House 60 Democrats and 54 Republicans.

mercial Gazette" published what purported to be a fac-simile of a contract in its possession, to this effect:

WASHINGTON, D. C., July 2, 1888.

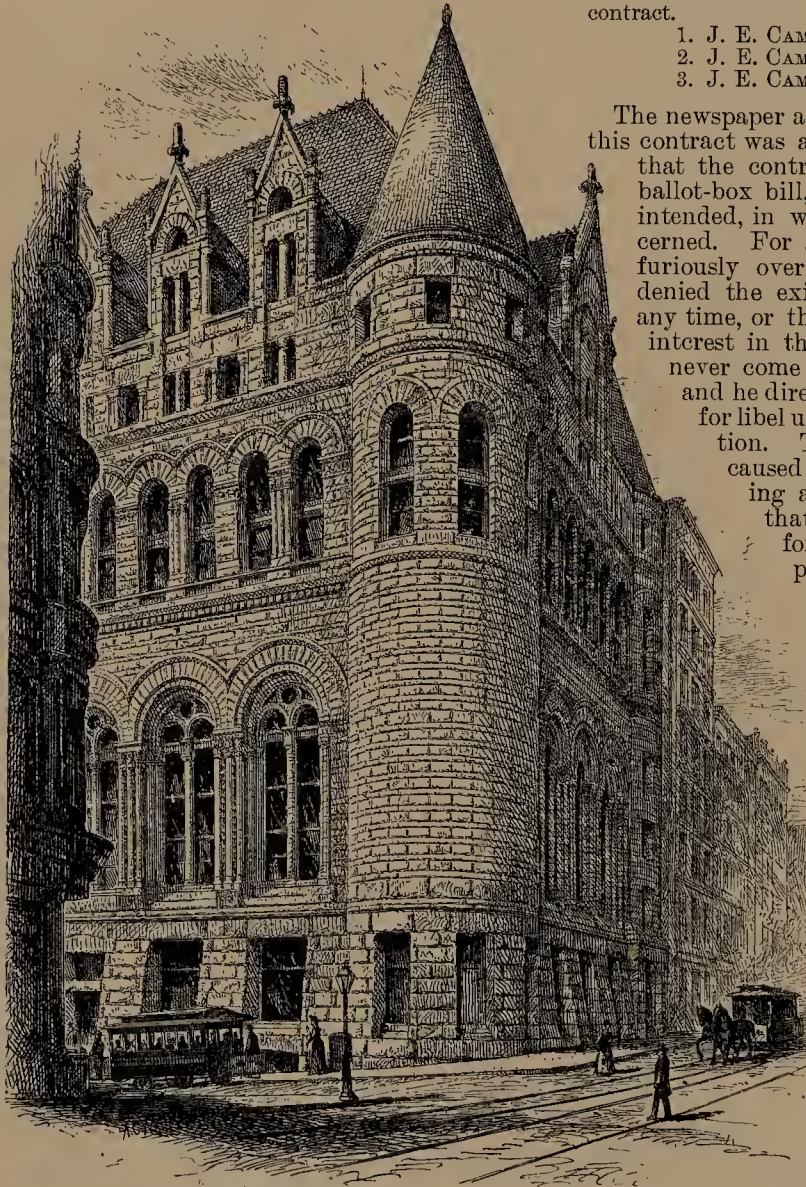
We, the undersigned, agree to pay the amounts set opposite, or any proportionate part thereof, whenever requested to do so by John R. McLean, upon "Contract No. 1,000," a copy of which is to be given to each subscriber upon payment of any part of the money hereby subscribed. It is understood that each subscription of five thousand dollars shall entitle the subscriber thereof to a one-twentieth interest in said contract.

1. J. E. CAMPBELL (five thousand dollars).
2. J. E. CAMPBELL (five thousand dollars).
3. J. E. CAMPBELL (five thousand dollars).

The newspaper articles and speeches in which this contract was alluded to conveyed the idea that the contract was connected with the ballot-box bill, and that a "big steal" was intended, in which Mr. Campbell was concerned. For some days the combat raged furiously over this paper. Mr. Campbell denied the existence of such a contract at any time, or that he ever had the slightest interest in the ballot-box bill, which had never come up for hearing in Congress, and he directed his lawyers to bring suit for libel unless there was prompt retraction. The "Commercial Gazette"

caused the next sensation by publishing an editorial acknowledgment that the alleged contract was a forgery, and that no genuine paper of that kind was in existence. Some time afterward it admitted that other names, besides that of Mr. Campbell, were on the forged document, but that it had suppressed them in publication. These additional names were William McKinley, Jr., Justin R. Whiting, B. Butterworth, John Sherman, S. S. Cox, W. C. P. Breckinridge, William McAdoo, John R. McPherson, F. B. Stockbridge. All were forgeries, and subsequent investigation showed that none of them were in any way concerned in the ballot-box. A flood of admissions and explanations followed this retraction. It was learned that one R. G. Word, who was concerned in the manufacture of the ballot-boxes, wanted to get Gov. Foraker's recommendation to

the Mayor of Cincinnati as smoke inspector of that city. The Governor had heard of a paper compromising Campbell, McKinley, and Butterworth, in connection with the ballot-box, and that Word could procure it. He agreed to recommend Word for smoke inspector if he procured the incriminating paper for the Governor. Word obtained genuine signatures of some of the individuals, fabricated a contract, and by specious pretenses induced a draughtsman to repro-



THE NEW CHAMBER OF COMMERCE, CINCINNATI, OHIO.

The Ballot-Box Forgery.—The most sensational feature of the political canvass, and one that undoubtedly influenced the result in no small degree, was the ballot-box forgery. When the canvass was at its height, Gov. Foraker made a speech in Music Hall, Cincinnati, in which he referred to a patent ballot-box and a bill for its adoption which had been introduced in Congress by Mr. Campbell when a Representative from Ohio. A day or two later the Cincinnati "Com-

duce the signatures by tracing on the fictitious contract. This he gave to the Governor, and received in return the promised letter of recommendation. The Governor was surprised and disconcerted at finding other names than those of the three he had been told of, and did not know how to make use of the paper. Murat Halstead, of the Cincinnati "Commercial Gazette," assumed the responsibility of using it, suppressed all the names but that of Mr. Campbell, and was astounded on receiving the confession of the young draughtsman that the signatures were not genuine. Subsequently Word was found, and admitted that the whole paper was a fabrication, for which there was no foundation whatever. Gov. Foraker confessed that he had been the dupe of Word's ingenious fraud and his own anxiety to defeat Campbell in the election, which had made him less cautious than he might otherwise have been.

OKLAHOMA. The proclamation of President Harrison, opening to settlement this tract of 1,887,796.47 acres in the heart of Indian Territory, closed a long period of discontent and lawless adventure, and gave rise to a spectacle unparalleled even in the annals of Western civilization—the birth of a new country in a single day. Oklahoma (meaning in the Indian language "Beautiful Land") was originally a part of the Louisiana purchase set aside for Indians by act of June 30, 1834, as the final result of legislation. Lands granted to the Creek Nation Feb. 12, 1825, were patented Aug. 11, 1852, the patent being one of three to the five civilized tribes, which included materially all lands in the Indian Territory. By treaty of Feb. 14, 1833, the Seminole Indians were made part of the Creek Nation, the main boundary between the adjacent lands of the tribes being the North Fork of Canadian river. By treaty of June 14, 1866 (proclaimed Aug. 11), the entire western half of the domain of the Creeks, containing 3,402,450.28 acres, was ceded to the United States for settlement thereon of other civilized Indians and freedmen, the United States to pay thirty cents an acre. The Seminole Indians also, by treaty of March 21, 1866 (proclaimed Aug. 16), ceded for the same purpose their entire domain of 2,037,414.62 acres, at fifteen cents an acre, purchasing of the above cession made by the Creeks 200,000 acres now occupied by the tribe. On the lands thus ceded, known as the Oklahoma district, were located—by law, treaties, and Executive orders—on the east, the Sacs and Foxes and Pottawatomies in 1867, Iowas and Kickapoos in 1883, and on the west the Cheyennes and Arapahoes in 1869. The remaining lands, unoccupied by any Indians, constitute Oklahoma, opened to white settlement April 22, 1889.

From the days of Don Diego Dionisio de Penalosa, who visited the country on a mission northward in 1662, and gave glowing accounts of its beauty and fertility, exaggerated estimates of Oklahoma have prevailed. Brig.-Gen. Wesley Merritt, military commander of the district at the time of opening, in his report to the War Department for 1889, thus briefly reconciles conflicting statements: "Part of this is fair farming land, such as is found in Texas and Kansas along the same meridians. Some of it, more especially the lowlands and that along the

streams, will be very productive, but much, it is to be feared, save in more favorable seasons, will be a disappointment." While the country is well watered, much of the water is salty or alkaline, and although the climate is mild, prevailing high winds and dust, with occasional severe "northers," are reported. The mean annual rainfall slightly exceeds that of western Kansas, the fall in April, May, and June, amounting to about thirteen inches.

The existence of lands owned by the Government once being known, albeit under specific stipulations as to the character of settlers to be allowed thereon, the desire for possession seized Western speculators. In 1879 an extensive scheme was organized to take forcible possession. Letters published and circulated in the States surrounding Indian Territory declared the lands public and open to settlement by citizens of the United States, and parties from Missouri, Kansas, and Texas entered the Territory, carrying household goods, farming implements, etc., with the intention of obtaining homes. A proclamation of President Hayes, April 26, 1879, forbade the movement, and ordered a removal of such persons by the military, if necessary. A second proclamation to the same effect was issued Feb. 12, 1880. David L. Payne, leader of the "boomers" from this period, was repeatedly arrested by United States troops and expelled from the Territory, the number of his followers increasing with every successive expedition. Recommendations were urged upon Congress for the passage of more stringent laws regarding invasion of the Indian Territory, the penalty for which offense was only a statutory fine of \$1,000. Suit for this being brought in the nature of an action for debt, and judgment rendered, invariably barren of result, the offender was released, to renew his operations. Twice at least in every year until his death from heart-disease, Nov. 28, 1884, was Payne, after his arrest and removal from the Oklahoma district, bound over for such proceedings at Fort Smith, Ark. By report of Col. Hatch, who, under proclamation of President Arthur, July 1, 1884, dislodged Payne and persons variously estimated to number from 500 to 2,000 from settlements on Cherokee lands, it is shown that payments made to this "captain" and his immediate associates, for "surveys, claims, town-lots, and initiation fees," had to that date aggregated nearly \$100,000. Every member of the "colony" was provided with a certificate as follows:

OFFICE OF PAYNE'S OKLAHOMA COLONY,
WICHITA, KAN.,....., 188..

This certifies that, having paid the fee of two dollars, is a member of Payne's Oklahoma Colony, is entitled to all the benefits and protection of said colony and an equal voice in all matters pertaining to and the formation of its local government.

In testimony whereof, the official signatures of the president and secretary are hereto subscribed, and the seal of the colony attached.

....., *Secretary.* , *President.*

Fifty cents in addition was paid to the secretary. Land certificates were also issued to persons not desiring to go personally into Oklahoma, guaranteeing 160 acres of land in the colony in consideration of \$25. From official reports of the War Department it appears that in the last ex-

pedition referred to, from 6,000 to 10,000 claims had been surveyed on the Cherokee lands.

On the death of Payne, raids were organized and carried on by W. L. Couch, who with Cooper, Miller, Eichelburger, and others, had previously acted as lieutenant. In December, 1884, he entered Indian Territory with a large body of armed men, and encamped at Stillwater, on the Cimarron river, defying removal by the military. On Jan. 27, 1885, he was obliged to surrender, and the party were marched across the Kansas line, Couch and his leading associates being then arrested under Federal warrants and placed under heavy bonds to appear in the United States courts to answer to a charge of unlawfully engaging in insurrection against the authority of the United States. The suits were subsequently dismissed. Congress meantime, March 3, 1885 (section 8, Indian Appropriation act), authorized the President to open negotiations with the Creeks, Seminoles, and Cherokees for the purpose of opening to settlement, under the provisions of the homestead laws, the unassigned lands that had been ceded by treaties to the United States.

President Cleveland, March 13, 1885, issued a proclamation declaring the determination of the Government to maintain the integrity of the treaties with the tribes, and the removal twice or thrice yearly of large bodies of intruders, by United States troops, was continued until 1887. In this year no concerted movement was made.

Legislation on the subject of the Oklahoma opening culminated in the Springer bill, which passed the House of Representatives Jan. 1, 1889. This contemplated the organization of a new Oklahoma Territory, to include Oklahoma proper, the Cherokee Outlet, or Strip the Public Land Strip, or No Man's Land, and all that part of the Indian Territory not actually occupied by the five civilized tribes. This bill was lost in the Senate. On Jan. 19, 1889, delegates of the Creek Nation, at Washington, D. C., entered into an agreement for the complete cession and relinquishment of the western half of their domain, in consideration of \$2,280,857.10, the agreement being ratified by the Creek Council on Jan. 31, 1889, and by Congress on March 1. Authorized delegates of the Seminoles also, March 16, 1889, executed a release and conveyance of the lands ceded by treaty of 1866, \$1,912,942.02 having been appropriated to pay for the right, title, interest, and claim in and to the same, March 2, 1889. The sum of \$4,193,799.12 was thus paid for an aggregate of 5,439,865.60 acres. The presidential proclamation of March 27, 1889, opening the unoccupied portion to settlement on April 22, defined the boundaries. They may be briefly stated as follows: North, the Cherokee Outlet; east, the Iowa, Kickapoo, and Pottawatomie reservations; southwest, the Canadian river; south, the Cheyenne and Arrapahoe reservation; northwest, the Cimarron river. The center is traversed by the Atchison, Topeka and Santa Fé Railroad, constructed under act of July 4, 1884.

As thousands of persons were on the borders of the Territory, necessitating as little delay as possible in allowing them to enter homes, no preparations for the government of the new domain were made by Congress other than the

establishment (March 1, 1889) of a United States court, with attorney and marshal, for the whole Indian Territory. Special provisions of the act of March 2, 1889, modified the homestead laws and official regulations. Land offices were established at Guthrie and Kingfisher Stage station, and a military force equal to a regiment of cavalry and more than a regiment of infantry, was placed in the field, under the command of Gen. Wesley Merritt, the cavalry being disposed along the border to keep the country free of intruders, until noon of the designated day.

From the date of the President's proclamation, a steadily increasing influx of home-seekers, with adventurers of all kinds, took place toward the "promised land." Colonies were formed, among which were to be noted the Emporia, of 20,000, and that of the old soldiers. Whole outfits for towns, including portable houses, were shipped by rail, and individual families in picturesque, primitive, white-covered wagons, journeying forward, stretched out for miles in an unbroken line. On April 18 passage across the Cherokee Strip was allowed. On the southern border most of the settlers were collected around Purcell, and numbers also filled the lands on the east and west. The express warning given by the closing clause of the proclamation, that "no person entering upon and occupying said lands before the hour of 12 o'clock, noon," April 22, 1889, "will ever be permitted to enter any of said lands or acquire any rights thereto," acted in great measure effectually in restraining the feverish impatience of settlers, for the assistance of whom all was done that could be by the troops, in constructing bridges across swollen rivers, etc. The law forbidding the introduction of ardent spirits into the Indian Territory was strictly enforced, and to this action was largely attributed the peaceful entrance into and occupation of Oklahoma, despite the fact that most of the settlers were armed. The blast of a bugle, at noon on a beautiful spring day, was the signal for a wild rush across all the borders. Men on horseback, on foot, in every conceivable vehicle, sought homes at the utmost speed, and before nightfall town sites were laid out for several thousand inhabitants each. Upward of 50,000 persons entered the Territory, and between 6,000 and 7,000 were conveyed from Arkansas City to Guthrie by rail in the afternoon of the first day. Serious disadvantages were encountered in clouds of dust, and in scarcity of water.

The total number of homestead entries and filings made in Oklahoma, to Nov. 30, 1889, were 11,847, covering 1,685,519.55 acres, and the amount received for fees and commissions was \$154,753. Applications for town-site entries, which from the peculiar condition of the country, without authorized municipal authority, could not legally be received, but were ordered to be reported, to June 30, 1889, numbered 30, 8 of which were rejected on account of gross informality, and 23 await action by Congress. The population of Oklahoma, by report of the Secretary of the Interior for 1889, is 60,000, of which 20,200 are distributed among 28 towns, the largest of which are: Guthrie (including East and West Guthrie, and Capital Hill), 8,000; Kingfisher and Lisbon, 3,000; Oklahoma City

(including South Oklahoma City), 5,000. The town of Gutirie, four months after its foundation, had four daily newspapers, water-works in operation for three months, six banks (the first of which opened in a tent, with capital of \$50,000 on the afternoon of April 22), and chartered street-car and electric-light companies. The Territory contains 29 schools and 38 churches, and publishes 22 newspapers. In the largest towns, voluntary action of the citizens has organized municipal government; mayors, city councils, tax collectors, and city marshals exist, and a court in the nature of an arbitration board.

ONTARIO, PROVINCE OF. Owing to the incurable illness of Mr. Pardee, Commissioner of Crown Lands, several changes were made in the Cabinet during 1889. Mr. Pardee's resignation was accepted, and he was succeeded by Mr. Hardy, formerly Provincial Secretary. Mr. Gibson, of Hamilton, was taken into the Cabinet as Provincial Secretary, and Mr. Charles Drury as Minister of Agriculture.

Finances.—Mr. A. M. Ross, Provincial Treasurer, in his budget speech delivered on Feb. 14, showed the total receipts for the year to be \$3,587,421.78, and the total expenditure \$3,536,248.46. The latter sum includes the money spent on the new Parliament buildings, pensions, railway-aid certificates, drainage debentures, etc. The ordinary expenditure under the supply bill was \$3,007,037.02. The assets of the province amounted to \$7,122,455.58, and the liabilities to \$387,805.73, showing a surplus of \$6,734,649.85.

French Languages in Schools.—One of the effects of the Jesuits' Estates act of the Quebec Legislature was to arouse a much stronger Protestant feeling in the Province of Ontario than was manifested among the Protestants of Quebec. This feeling found vent not only in the Anti-Jesuit meetings in Toronto and other Ontarian cities and towns, but also in the Legislature, where it took the form of general suspicion of and opposition to the development of French influence and the use of the French language in Ontario. On March 8 Mr. Craig moved for an order of the House showing the number and location of public schools in Ontario in which any language other than English is used in the work of teaching, either wholly or in part; a list of text-books in any language other than English used in such schools; the number of pupils in each of such schools using text-books other than English; and the number of teachers in such schools who can not use the English language in teaching. Mr. Craig argued that Ontario is distinctively an English province, and that the will of the people is that it shall so remain. The extensive teaching of French he protested against as an evil. Mr. Ross, Minister of Education, in replying to the remarks of Mr. Craig that implied censure of the Government, claimed credit for the administration on the ground that in 1887 for the first time they had provided that English should be taught in every school in Ontario. In January, 1887, there were twenty-seven schools in which English was not taught; in December of the same year there were only six. He was not prepared to take the ground that the Eng-

lish language only should be taught. Confederation could not be built up without the sympathy and active aid of the Province of Quebec. Mr. Meredith, leader of the Opposition (Conservative), denied that his party were waging war against the French. Their aim was that English should be the prevailing language of the province. He took his stand on that principle, even if the effect should be to drive him from public life. Mr. Meredith deprecated the establishment of Roman Catholic separate schools. Mr. Fraser, Commissioner of Public Works, pointed out that the debate had been principally confined to the counties of Prescott and Russell, and that in these counties there were very few English-speaking residents. The people who paid the rates and supported the schools were all French or of French descent. The motion was allowed to pass.

On March 19, on motion to go into Committee of Supply, Mr. Craig brought up the subject by moving an amendment to this effect:

The English language is the language of the Province of Ontario, and no system of public instruction which does not insure that in every school aided by provincial funds, or supported in whole or in part by local taxation, the teachers employed are capable of imparting instruction in the English tongue, and that every pupil is instructed in it, and does not recognize and act upon the recognition that the English language is to be the language of such school and require that the books in use in them, except those employed in giving religious instruction, when and where such instruction is permitted by law, will be approved of by the department having the charge of educational affairs as satisfactory to this House, or will meet with the approval of the people of this province.

Mr. Craig claimed that there was danger of the English language, not at present, but in the future, being superseded by French. He charged that there were schools in the province in which English was not taught, and the teachers of which were not capable of imparting instruction in that tongue.

Mr. Mowatt, Premier and Attorney-General, said the Government might have approved the principle of the motion had it come in any other form than as a vote of censure upon the Government. But as a constitutional lawyer he was not prepared to admit that the Legislature had the power to prescribe what text-books should be used in the separate schools. Attempts had been made to get these schools to use voluntarily the text-books used by public schools.

Mr. Meredith characterized the Premier's declaration about the powers of the Legislature as a most dangerous admission. Mr. G. W. Ross, Minister of Education, denied that there was any evidence of French driving the English language from the schools; and Mr. Evanturel presented the argument from a French point of view.

The resolution was defeated by a vote of 49 to 30, the division being as follows:

YEAS—Blyth, Clancy, H. E. Clarke, (Toronto), Craig, Creighton, Cruess, Fell, French, Hess, Hudson, Ingram, Kerns, Lees, Marler, Meacham, Meredith, Metcalfe, Miller, Monk, Morgan, Ostrom, Preston, Rorke, Smith (Frontenac), Stewart, Tooley, Whitney, Willoughby, Wood (Hastings), Wylic—30.

NAYS—Allan, Armstrong, Balfour, Ballantine, Bishop, Bleyard, Bronson, Caldwell, Clarke (Wellington), Conmee, Dack, Duncie, Davis, Drury, Evanturel, Ferguson, Field, Fraser, Freeman, Garson, Gib-

son (Hamilton), Gibson (Huron), Gilmour, Gould, Graham, Harcourt, Hardy, Lyon, McKay, McLaughlin, McMahon, Mack, Master, Morin, Mowatt, Murray, O'Connor, Pacand, Phelps, Rayside, Robillard, Ross (Huron), Ross (Middlesex), Smith (York), Snider, Sprague, Stratton, Waters, Wood (Brant)—49.

A commission was subsequently appointed to inquire into the condition of the schools in question, and on Oct. 20 the Minister of Education issued instructions to the teachers and trustees of those schools in which French and German had been taught, the circular being based upon the report of the commission. The circular dealt with text-books, training of teachers, methods of teaching, the use of the English language, and religious instruction. By the instructions, boards were permitted to shorten the school day for the purpose of devoting part of it to religious instruction; clergy of the various denominations were authorized to claim the right to instruct pupils of their own churches, once a week, in each school-house; and boards were empowered to make such arrangements among the various denominations as would enable all to be accommodated to the best advantage.

The License Law.—On March 14 Mr. Meredith moved a vote of censure upon the Government, to the effect that the mode of administering the license law through the Board of Commissioners and Inspectors appointed by the Government had resulted in a partisan administration of the law, undue influence being brought to bear in the interest of the party in power. The Government denied the charge, and, after a long debate, the motion was rejected by a vote of 43 to 23.

ORDNANCE, SMALL ARMS. See RIFLES. **OREGON**, a Pacific coast State, admitted to the Union in 1859; area, 96,030 square miles; population, according to the last decennial census (1880), 174,768; capital, Salem.

Government.—The following were the State officers during the year: Governor, Sylvester Pennoyer, Democrat; Secretary of State, Auditor, and Insurance Commissioner, George W. McBride; Treasurer, George W. Webb; Superintendent of Public Instruction, E. B. McElroy; Railroad Commissioners, J. H. Faull, George W. Colvig, and Robert Clow; Chief Justice of the Supreme Court, William W. Thayer; Associates: Reuben S. Strahan and William P. Lord.

Finances.—The receipts of the treasury for the two years ending Jan. 1, 1889, including a balance of \$382,483.38 on Jan. 10, 1887, were \$2,034,636.64; the disbursements for the same period were \$1,791,258.25, and there remained on Jan. 1, 1889, a balance of \$243,378.39. The general fund balance in the same period was reduced from \$100,175.53 to \$30,236.23. The assessed valuation of the State for 1887 was \$84,888,580, and for 1888 \$85,893,429. For 1887 the State tax was 5-2 mills, yielding \$441,420.61; for 1888 it was 4 mills, yielding \$343,573.71.

Legislative Session.—The fifteenth regular session of the Legislature began on Jan. 14 and adjourned on Feb. 21. On Jan. 22 United States Senator Joseph N. Dolph, Republican, was re-elected by the following vote: Senate—Dolph 21, Gov. Pennoyer (the Democratic nominee) 9; House—Dolph 46, Pennoyer 9; scattering votes, 4.

The high-license act, passed at this session, raises the annual license fee for retailing spirituous, malt, or vinous liquors from \$100 to \$400, and for retailing malt liquors only to \$200. Licenses may be granted by the county court, but only when the petitioner has obtained the signatures of an actual majority of the whole number of legal voters in the precinct in which he may wish to sell. No license fee is imposed for selling in quantities of more than a gallon. The ballot law was amended so that the ballot paper to be used at all elections shall be procured by the Secretary of State at State expense and distributed to the county clerks, from whom voters may procure the blank sheets. All ballots shall be printed on this paper. They shall be 12 inches long and 4 inches wide for every general election, and 6 inches long and 4 inches wide for every special and municipal election. No device or mark shall be printed or placed on the back so as to distinguish one legal ballot from another. All the candidates shall be voted for on a single ballot. No ballot that does not conform to all these requirements shall be received or counted.

For the relief of veterans of the Indian, Mexican, and civil wars, and of their widows and children, an act was passed authorizing each county to levy a tax not exceeding two tenths of a mill to raise a county relief fund. This shall be distributed by the commander of any post of veterans in the county, and, if there be no such post, by the county judge.

An amendment to the State Constitution, authorizing the Legislature to pass a registration law, was proposed for the first time.

The State tax for the support of the State University was increased from one tenth to one seventh of a mill annually, and tuition at the institution was made free to all inhabitants of the State. A State Reform School for juvenile offenders was established and \$30,000 appropriated for land and buildings. The sum of \$113,000 was appropriated to aid in constructing wagon roads. Other acts were as follow:

Prohibiting the sale or gift of tobacco, cigars, or cigarettes in any form to any minor under eighteen years, without the written consent of parent or guardian.

Appropriating \$30,000 for additional land and buildings at the State Agricultural College at Corvallis, \$5,000 in aid of current expenses, and \$2,500 in payment of legal expenses incurred by the regents.

Increasing the Board of Railroad Commissioners to three members, and providing that they shall be chosen biennially by the Legislative Assembly, instead of being appointed quadrennially by the Governor.

Providing that, on petition to the county court, half of the owners of lands susceptible of one system of drainage, and representing one third in area of such lands, may, under the direction of such court, establish a system of drainage for such district.

To confer upon certain benevolent or charitable corporations power to control and dispose of homeless, neglected, or abused children.

Establishing a State weather service, to be in charge of a director and having one or more meteorological observers in each county, and appropriating \$2,000 therefor.

To prevent the production and sale of unwholesome food, to regulate the sale of adulterated food, drink, and medicine, and to create the office of State Food Commissioner.

Creating the county of Harney out of the northern portion of Grant County.

Providing a method by which lumbering and logging firms, corporations, or individuals may open and maintain roads and chutes for the transfer of lumber and logs.

Revising the insurance law.

To cure defects in the execution or acknowledgment of deeds and defects in judicial sales of land or sales by executors.

Revising the law of descent of real property.

Giving sub-contractors, material men, and laborers employed by any person contracting with a railroad company a lien on its property.

Creating the county of Sherman out of a portion of Wasco County.

Providing that a married woman may apply to the county court, at any time, for an order upon her husband to support her and her children by him begotten.

Establishing the "Oregon Domestic Animal Commission," which shall appoint a State veterinarian, to prevent contagious diseases among animals.

Authorizing county courts to declare unnavigable streams to be public highways for floating logs and timber, and to provide for improving and preparing the same for such use, and for compensating riparian owners.

Appointing the afternoon of the second Friday in April as Arbor Day, which the public schools shall observe by tree-planting and exercises appropriate thereto.

Revising the public-school law.

Creating a State Board of Horticulture of six members.

Making it a misdemeanor for any person to ask or request for himself or another to be placed on any jury, or for a sheriff or other officer, upon such request, to place any such person on any jury.

Creating a State board of examiners in medicine and surgery.

Amending the pilotage law so as to reduce pilotage fees on the Columbia and Willamette rivers. The compensation for piloting a vessel to or from Astoria over the bar, or from within the bar to the open sea, is fixed at \$4 per foot draft and 2 cents a ton for each ton over 1,000 tons; from or within the bar and below Sand island half that rate, and from or above Sand island one quarter. The compensation for piloting a vessel between Astoria and Portland is fixed at \$2 per foot draft and 2 cents for each ton over 1,000 tons. [The State Supreme Court in July affirmed the constitutionality of this act.]

Requiring all children between the ages of eight and fourteen years, to attend school twelve weeks in the year, of which eight weeks must be consecutive. [This act omits the objectionable features of the Emmett compulsory education bill, which Gov. Pennoyer vetoed two years ago.]

Penitentiary.—On June 30 the number of convicts at the Penitentiary were 305, of whom 203 were employed in a stove foundry. The State receives under contract forty cents a day for each of these convicts. Of the remaining number, 28 were employed in the brick yard, and the remainder in miscellaneous prison labor. For the two years ending on Jan. 1, 1889, the average number of convicts was 259, the lowest number at any time being 240. During the last six months of 1888 the number increased, and on Dec. 31 it reached 289. The expenditures for the two years were \$68,659.41, of which \$41,903.08 was repaid by the labor of convicts.

Insane Asylum.—The State Insane Asylum at Salem contained about 470 patients at the beginning of 1889, of whom more than two thirds were men. The institution is on a large tract, on which the farm products are sufficient for the

needs of the asylum. The cost of the institution to the State for 1887 and 1888, including transportation of patients, was \$149,090.48.

Railroad Commission.—Early in January Gov. Pennoyer removed from office the two railroad commissioners, George W. Waggoner and J. H. Slater, appointed by him in 1887, under the legislative act of that year, on the ground that they had failed to perform their duties. The friends of the deposed officials in the Legislature thereupon retaliated by passing a resolution disapproving the action of the Governor and sustaining the commissioners. They also passed a bill depriving the Governor of the power of appointing the commission, which was by the same bill increased to three members, and vesting it in the Legislature. This bill was vetoed by the Governor, and passed over his veto. The Legislature elected under this act J. H. Faull, George W. Colvig, and Robert Clow, as the three commissioners. The act provided that, as there was an emergency, it should go into effect immediately upon its approval by the Governor; but, as the latter had refused his approval, he claimed that the clause became nugatory, and that, under the State Constitution, the law could not go into effect for ninety days, at which time the Legislature would have adjourned, and he would have authority to fill the vacancy. Until the ninety days had expired, he claimed, the act of 1887 was in force, and under it in February he appointed W. H. Biggs and C. P. Church to be the two railroad commissioners. He also refused to approve the bonds of the commissioners elected by the Legislature, as required by the act creating them. They, however, obtained possession of the office room used by the former commission, and transacted the routine business of the office. In order to determine which of these boards was legally organized, the Governor's appointee, W. H. Biggs (Church having declined the appointment), applied to the district court in March for a writ of mandamus to compel the State Auditor to draw a warrant for his salary. Judge Boise, of this court, on April 9, refused the application on the ground that, in construing the statute of 1889, the intention of the Legislature, rather than the exact language used, should be followed; that the intention evidently was for the act to go into effect as soon as it had passed through the stages necessary for it to become a law, although its exact language was "after approval by the Governor"; that the act of 1889 was, therefore, in force, and the Governor's appointees had no standing. An appeal was taken to the State Supreme Court, before which the question was reargued, and also the question whether the act was a usurpation of executive power by the Legislature. In June this court ruled adversely to the Governor on both points. His next action was to apply to the district court for an order restraining the Auditor from issuing warrants to the new commissioners, on the ground that he had not approved their bonds, as required by the new law, and that, therefore, they were not legally in office. This application, made in September, was refused by Judge Boise, on the ground that his court had no authority to issue such an order. The Governor then began proceedings by *quo warranto* to try the title of the

commissioners to their office. At the close of the year the legislative appointees still held their place.

Political.—On Sept. 14 a State convention met at Salem to form an amalgamated party, which should include Prohibitionists, Grangers, Free-Traders, Greenbackers, American party men, Knights of Labor, Union Labor men, Woman Suffragists, and any others disaffected with the two leading parties. Many delegates were present, and an organization was effected under the name of the "Union party," the object being to secure influence and standing in the canvass of 1890 by a union of forces. The platform agreed upon contained the following: We declare that the Government should prohibit the manufacture, sale, supply, exportation

and importation of, and interstate commerce in all intoxicating liquors to be used as a beverage; should establish a national monetary system, by which a circulating medium in necessary quantity shall issue direct to the people, without the intervention of banks; that all chartered corporations created by law for the transportation of passengers, products, or intelligence should be regulated by national and State law; should establish a governmental land system that will restore to the public domain all unearned land grants, to be reserved for actual settlers; should require of foreigners a residence of ten years and a definite test of knowledge of our institutions as conditions of citizenship; should provide for arbitration that will prevent strikes and other injurious methods of settling labor disputes.

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PARAGUAY, a republic in South America. (For details of the census taken in 1866, see "Annual Cyclopædia" for 1887.)

Government.—The President is Gen. Patricio Escobar, whose term of office will expire on Nov. 25, 1890. His Cabinet is composed of the following ministers: Interior, Col. Meza; Foreign Affairs, J. C. Centurion; Finances, H. Uriarte; Justice and Public Worship, M. Maciel; War, Gen. Duarte. The United States Minister for Paraguay and Uruguay, resident at Montevideo, is George Maney; the American Consul at Asuncion Frank D. Hill. The Paraguayan Consul-General at New York is Rafael R. Barthold.

Army.—The strength of the regular army in 1889 was 1,092 foot and 284 horse, besides an artillery numbering 20 field-pieces. All men capable of bearing arms are enrolled in the National Guard.

Navy.—The navy was composed of a screw man-of-war of 440 tons, mounting 4 guns, and being manned by 6 officers and 36 sailors, and two small steamers with 51 marines.

Finances.—On Jan. 1, 1888, the internal debt amounted to \$1,068,891, and the foreign debt to \$4,250,000. The income of the state in 1888 was derived from the following sources: Land sales and leases, \$1,915,445; revenue from customs, \$1,389,132; taxes, \$246,868, together, \$3,551,445.

Postal Service.—The number of items of mail matter handled in 1888 was 807,562.

Commerce.—The import of merchandise in 1888 was \$3,289,000, compared with \$2,442,000 in 1887, and the exports \$2,588,000 against \$2,005,000, showing a notable increase. The custom-houses yielded in 1888 a revenue of \$1,389,000, against \$1,153,000 in 1887. The chief products exported in 1887 were: Tobacco, 4,014 tons; yerba-maté or Paraguay tea, 6,410 tons; 81,000 hides, 34,000,000 oranges, and 193,776 running yards of cabinet wood. There entered Paraguay river in 1887 392 vessels from Montevideo and Buenos Ayres, where they arrived with cargo for Paraguay, 278 being steamers, the total tonnage being 93,545; and there sailed with Paraguayan cargoes 392,263 of these steamers, with a tonnage of 93,036. River navi-

gation was represented by 1,110 vessels of 41,259 tons ascending the river, and 1,046 with 41,624 descending it.

Colonization.—The Chambers voted \$200,000 toward aiding immigration and colonization, that being four times the amount the Government had applied for.

PARIS EXPOSITION. The World's Fair or Universal Exposition held in Paris in 1889 to celebrate the centenary of French independence, was opened by President Carnot on May 6, and closed on Nov. 6, with a brilliant *fête*, after a successful existence of six months. This fourth and largest exhibition of the kind in the "city of devices" was visited by 25,000,000 paying visitors, against 12,000,000 to the Exposition of 1878, and 8,000,000 to that of 1867. Of this number 5,000,000 were from the provinces of France and 1,500,000 foreigners, divided as follows: English, 380,000; Belgians, 225,000; Germans, 160,000; Spaniards, 56,000; Swiss, 52,000; Italians, 38,000; Austrians, 32,000; Russians, 7,000; Greeks, Turks, and Roumanians, 6,000; Portuguese, 3,500; Scandinavians, 2,500; Asiatics, 8,000; Algerians and other Africans, 12,000; North Americans, 90,000; South Americans, 25,000. The number of exhibitors was more than 60,000, and the number of recompenses awarded, 33,139; 903 grand prizes were distributed; 5,153 gold, 9,690 silver, and 9,323 bronze medals; and 8,070 names received honorable mention.

The space occupied by the Exposition, not including that along the river banks, was 175 acres. The first exposition, held at Paris in 1855, was confined within the Champs-Élysées; in 1867 part of the Champ de Mars was occupied, and in 1878 the Hill of the Trocadéro was also included, the palace of the same name being built at a cost of \$2,000,000. The Exposition of 1889 filled both of these, extending three fourths of a mile along the Quay d'Orsay, and into the Esplanade des Invalides, 550 × 270 yards.

In consequence of the nature of the political principles of which the Exposition of 1889 commemorated the triumph, the only nations that officially participated were: The United States of America, Mexico, the Central and South

American republics, Santo Domingo, Greece, Monaco, Norway, Servia, Switzerland, San Marino, Japan, Persia, Siam, Morocco, the Hawaiian Islands, the Transvaal Republic, and the British colonies of Victoria and New Zealand, acting independently of the imperial authority. Germany, Sweden, Turkey, and Montenegro declined representation. Austria-Hungary, Belgium, Great Britain, Denmark, the Netherlands, Russia, Italy, Spain, Roumania, Portugal, Luxembourg, Egypt, Brazil, and China were unofficially represented by private committees. Small subsidies were given by some of these countries. The invitation of the French Government was accepted by act of Congress, May 10, 1888, and \$250,000 was appropriated for expenses incidental to the exhibit of the United States. A commissioner-general, assistant commissioner-general, and nine scientific experts, one for each of the nine groups into which the exposition was divided, were appointed, and freights were paid to and from Paris on all exhibits. The exhibit of the United States ranked fourth in size. There were 1,500 exhibitors from the United States.

The decree for the Exposition of 1889 was published in the "Journal Officiel," Nov. 10, 1884; but work on the grounds did not begin before the first months of 1886. The directors of the enterprise were: M. Charles Adolphe Alphand, civil engineer, Director of Public Works, seventy-two years of age, who beautified Paris under Napoleon III, and cleared away its ruins after the siege; M. Georges Berger, manager and director of arrangements, exhibits, etc.; and M. Grison, financial director. All exhibits, as in 1878, were divided into 9 groups subdivided into 85 classes, as follow: Group I, works of art, in 5 classes; Group II, education and instruction—apparatus and processes used in the liberal arts, in 11 classes; Group III, furniture and accessories, in 13 classes; Group IV, textile fabrics, wearing apparel, and accessories, in 11 classes; Group V, extractive arts—raw and manufactured products, in 7 classes; Group VI, apparatus and processes of mechanical industries and electricity, in 19 classes; Group VII, food-stuffs, in 7 classes; Group VIII, agriculture, cultivation of the vine, and fish culture, in 6 classes; Group IX, horticulture, in 6 classes.

The prominent features of the Exposition were the Eiffel Tower (for an illustration of which see "Annual Cyclopædia" for 1888, page 309), Machinery Palace, the Palace of Industries, the Palaces of the Fine and Liberal Arts, contained within the Champ de Mars, the postal and telegraphic exhibits, the sections of war and public health, and the exhibits of the colonies and protectorates of France, in the Esplanade des Invalides, the agricultural display along the Quay d'Orsay, and the horticultural in the park of the Trocadéro.

Beginning at the Champ de Mars, the parallelogram, containing 4,733,000 square feet, stretching between the Seine and the École Militaire, and bounded on the two sides by the avenues de la Bourdonnais and Suffren, connecting with the Trocadéro by the bridge of Jena, the first exhibit encountered was that of the uses and preparations of petroleum, in two small pavilions on either side of the bridge, one of which

contained a panorama of the countries of its production in Asia and the United States. Along the river bank were annexes of the group of machinery, on the one hand, and the marine and river exhibit on the other. At the extremity was the panorama of the Compagnie Transatlantique. The Street of Human Habitations, parallel with the river, designed by M. Charles Garnier, architect of the Grand Opéra, was one of the most interesting and instructive sights of the exposition. A series of forty-two small constructions, of various styles and shapes, reproduced the abodes of mankind, from the cave-dwellings of the prehistoric ages. All nations and civilizations were represented, a humorous sense of contrast of climate controlling in the disposition, and the culmination of the whole being reached in a French mansion of the Renaissance, reserved as a *salon* of honor for the President when visiting the exposition. The street extended along the whole front of the Champ de Mars, on either side of the Jena Bridge, facing which rose the Eiffel Tower of iron-work, 984 feet high, begun Jan. 28, 1887, and completed March 31, 1889, without accident or miscalculation. The base, covering two and a half acres, was formed by four piers of masonry 85 feet thick, arranged in a quadrangle 112 yards square, facing the four points of the compass. These piers rest upon iron caissons sunk to a depth of 49 feet on the side nearest the Seine and 29½ feet on the opposite side, into which concrete was poured. By means of hydraulic presses sunk in the foundations, any one or all of the four uprights can be raised or lowered if necessary. The iron weighs 7,000 tons, and consists of 12,000 pieces, fastened with 2,500,000 rivets. The girders and beams are hollow, and the upright standards have a breadth of two feet, while to the top the interval between successive horizontal beams is 33 feet. The four uprights, inclined at an initial angle of 54°, pass distinctly visible through two platforms, combining to form a single shaft at the height of 590 feet. On the first platform, 230 feet high, and having an area of about 5,800 square yards, beneath which rose the St. Vidal fountain, 29 feet in height and 37 feet in diameter, were four large restaurants and 12 stalls, and on the second, 380 feet high and 32 yards square, was the printing-office of the "Figaro" and "Petit Journal," from which those papers were issued daily, and also another place of refreshment. The third platform served only for a change of elevators, of which three systems were employed. The fourth and last platform, 13 feet across, commanded a view of 90 miles. Still higher was a large double lantern, 89 feet high, destined to be used as an observatory, which was closed to the public. Over all floated the flag of France, and the electric beacon, supplied by engines of 500 horse-power, visible for 40 miles, gleamed through tricolored glasses. The steps to the tower numbered 1,796, but ascent was forbidden except by elevator after the second platform. The ascents averaged 20,000 daily, and the tower was capable of containing 10,000 persons at a time. The total cost was \$1,500,000. The tower will stand for fifty years, and will be used for astronomical, meteorological, and, in case of war, strategical observations. No lightning conductor is required, as the tower

itself, by special communication with the aqueous subsoil, acts as a protection to an enormous space. As the result of private enterprise, to which the state contributed \$300,000 only, it will remain twenty years in the hands of the company of the projector, after which it will pass to the Government. The receipts to the close of the exposition were \$1,300,000.

The individual exhibits of numerous countries and influential industries, in special buildings constructed at their own expense, were a leading feature of the Exposition. To the right of the tower, facing the central dome of the Palace of Industries, were the structures of the South American republics, resplendent among them that of the Argentine, costing \$300,000. That of Mexico had the form of an Aztec temple. The pavilion of the Suez-Panama Company, carried out in the Egyptian style, contained models of the canals in question, and a model of the Nicaragua Canal was also to be seen in the pavilion of that country. In this square were a children's palace for the exhibition of toys, an international theatre, the Ocean Pavilion, a terrestrial globe thirty-nine feet in diameter, one millionth of the dimensions of the earth. The pavilions of Uruguay, Santo Domingo, Paraguay, and Guatemala extended in line behind the Palace of the Liberal Arts, followed by those of Hawaii, India, China, Roumania, Siam, Morocco, and Egypt, to the Palace of Machines, the conclusion being the Cairo Street—an exact reproduction—which was the subject of universal comment and admiration. Actual gateways and masonry brought from Cairo itself, and donkeys in the street, increased the illusion. The corresponding fringe of individual exhibits along the Avenue de la Bourdonnais consisted of metallurgic and ceramic industries of France, of technical interest (with a diamond-cutting establishment of Cape Colony), terminating in the Pavilion of the Press.

Exhibitions of water-colors and pastels, annexes of the Palace of Fine Arts, the pavilion of Monaco, a Turkish tobacco exhibit, the Theatre of Folies-Parisiennes, a Finnish pavilion, Norwegian and Swedish chalets, a Dutch diamond-cutting establishment, the Eiffel, the Gas, and the Telephone pavilions, with a French tobacco factory, substantially completed the square to the left of the tower.

In the central garden, distinguished for its beauty, adorned with statues and trees, sheltered with awnings, and having in its midst the Coutan fountain illuminated after night by electric lights in subterranean galleries, cast through colored glasses, with an effect of indescribable loveliness, were the two pavilions of the city of Paris, devoted to Public Works and Art, and to Education and Public Charities.

The buildings of the Exposition as a whole represented an advance over those of 1878, the iron framework of all being relieved by terracotta moldings and ornaments of masonry, lead, zinc, brass, glass, etc., producing a charming effect. Combinations of color, moreover, were subordinated to harmony of design. Opposite each other, on each side of the central garden, and extending about half its length, the twin Palaces of the Fine and Liberal Arts were the work of a single architect, M. Formigé, and cost

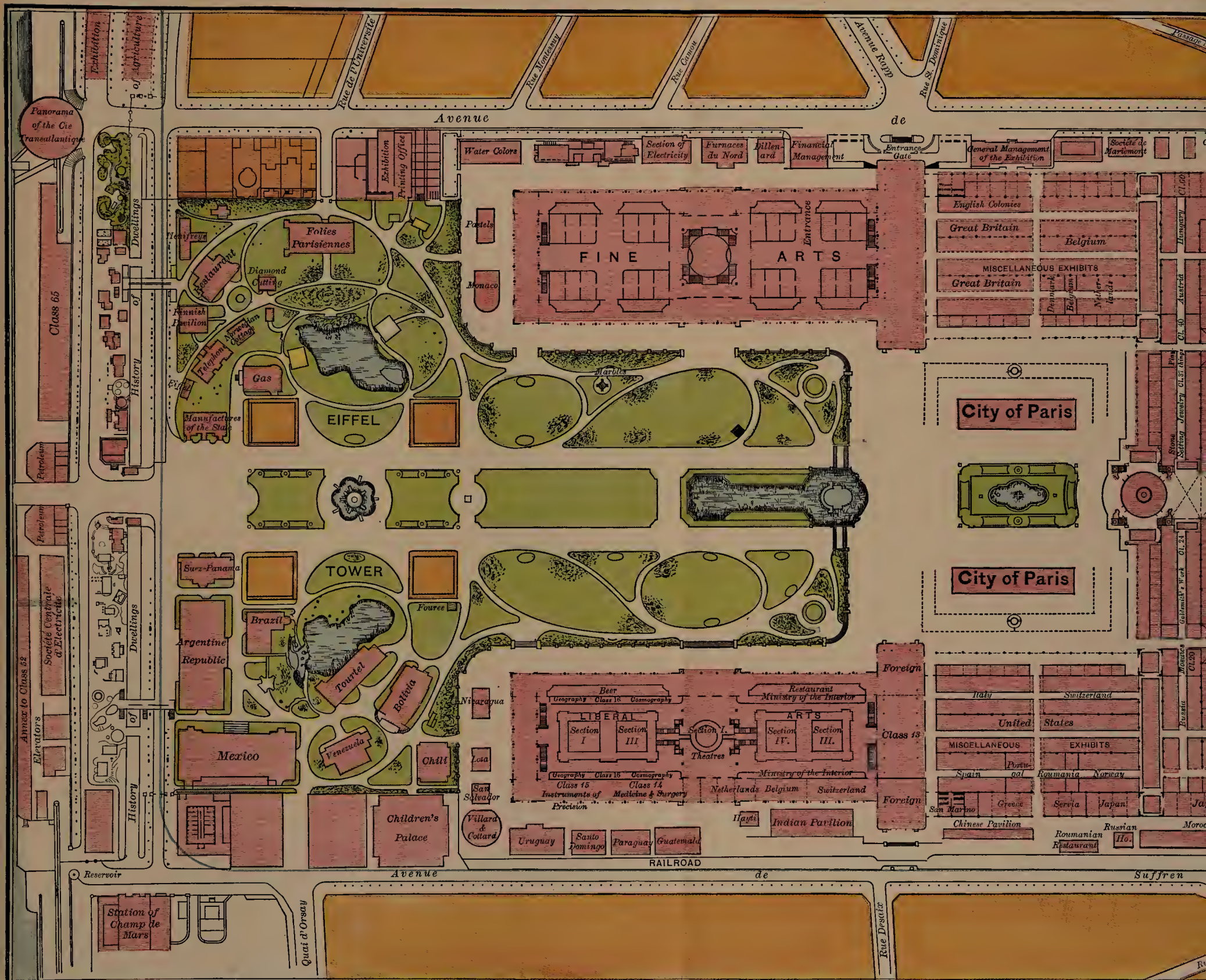
\$1,350,000. Each covered 202,232 square feet, and each was surmounted by a polychrome cupola 183 feet high. Both were connected with the Palace of Industries by the Galleries Rapp and Désaix, named from the avenue and street terminating at these points, where were also two of the entrances to the Exposition.

The Palace of Fine Arts contained two distinct exhibitions—a decennial, which was international, and a centennial, French only, immediately beneath the dome. The exhibit of the United States in this department was particularly creditable, and included 565 works by 252 artists. Art exhibits were made by countries having no industrial representation, Germany being accommodated with a separate room. Sculptures were disposed in the Gallery Rapp, overflowing even into the gardens, and models of architecture upon its balcony.

In the Palace of the Liberal Arts was a retrospective view of the Industry of Man, in four grand divisions, the fifth, the Art of War, forming a separate exhibit in the Esplanade des Invalides. The history of man and the anthropological sciences; the history of the several liberal arts, among which that of the theatre was especially charming; the history of the arts and trades, in which printing and photography were prominent; and the history of means of transportation, were traced in the infinite ramifications easily imaginable, with the extreme of scientific art. Education, primary and secondary, and professional and technical, bore a large part. An exhibition of musical instruments was held in the center of the Gallery Désaix, and a portion of the exhibit of foreign nations belonging to Group III were also obliged to be accommodated in this palace and the gallery named. Beneath the central dome was an immense balloon, representing, with the history of aërostation, the culmination of transportation.

One of the most novel and striking features of the Exposition was the gorgeous central dome of the Palace of Industries, 195 feet high, and having an exterior diameter of 120 feet. The frieze within was painted by Lavastre and Carpezat to represent a procession of the nations of the earth. The same was surmounted by a statue of France distributing crowns, 30 feet high, by Delaplanche. Within this dome and the pavilions on either side were exhibits of the national manufactures of France—mosaics, Gobelins and Beauvais tapestry and Sèvres china. The palace itself, a vast parallelogram, flanked by two wings, covered 1,138,930 square feet, and cost \$1,150,000. With the dome and portal, it was the work of the architect Bouvard. Along the entire front and both wings ran a gallery of restaurants.

Exhibits of France nearly filled the main building, or about two thirds of the space. Those of foreign nations were accommodated as follow: Great Britain and her colonies, 55,345 square feet; Denmark, 4,475; Belgium, 39,435; and the Netherlands, 12,768; in the wing bordering the Avenue de la Bourdonnais, the United States, 33,516; Spain, 11,198; Portugal, 5,604; Roumania, 4,475; Norway, 10,294; San Marino, 2,237; Greece, 6,045; Servia, 4,701; in that bordering the Avenue Suffren, "the countries of the sun," Japan, Siam, Egypt, and Persia, extending



PLAN OF THE PARIS EXPOSITION.

in line to the Palace of Machines, and occupying jointly 22,805 square feet. Austria-Hungary and Russia also occupied, the one 27,871 square feet and the other 20,169, in the main building. Each wing contained three arcades at right angles to the seven of the main building. These last were divided by a central gallery 550 by 150 feet, to the Palace of Machines, and 100 feet in height, containing distinctive and distinguished French products, notably a gilded organ for a church, a monumental organ, and superb bronzes. From this gallery fourteen enormous emblematic doors gave access to the classes of Group III on the left, Group IV on the right, and Group V on either hand. The exhibits of class 60 of Group VI, carriage-making, wheelwright's work, harness-making, and saddlery, were also accommodated in this palace. The industrial exhibit of the United States, falling far short of what was expected, and doing but scant justice to the manufacturers of our country, yet made some magnificent displays of gold and silver smithing, and the arts of the lapidary and glass-maker. Edison's phonographs and graphophone appeared in this department, separate from his electrical exhibit in the Palace of Machines.

This structure, the largest of its kind in the world, rivaling as a marvel of construction in iron the Eiffel Tower itself, was designed by M. Dutert, and executed by the engineers Contamin, Charton, and Pierron. It is 160 feet high, 1,452 feet long, and 380 feet wide, and covers more than 11 acres. Twenty iron girders, resting upon cast-iron sockets, imbedded in masonry, describe arches that support the glass roof, each girder consisting of two halves hinged in the center of the roof, to allow for dilation with changes of temperature. The weight of each is 394 tons. They are 70 feet apart, except those in the center, which are several feet farther, and those at the ends are double. The iron employed weighs 12,000 tons, and the cost of the whole was \$1,500,000. The main entrance was on the Avenue de la Bourdonnais, and was adorned with groups 30 feet high, representing Steam (by Chapu) and Electricity (by Barrias). The Battle of Bouvines, by Champigneulle, was the subject of the stained-glass window opposite. The building was begun in February, 1888, and completed in October of the same year. Steam generators of 5,500 horse-power behind the building supplied the force that was applied by 32 motors to the machinery in motion, which filled four longitudinal sections the whole length of the building, four great rows of shafting covered with pulleys serving as the main driving gear. Machines not displayed in motion occupied the remaining space and the gallery. An admirable view of the whole was obtained from traveling bridges, moved by electricity, which traversed the length of the building, at the height of 22 feet, and were in reality the cranes used by the workmen in the construction. Only four foreign nations exhibited—Switzerland, Belgium, the United States, and England—in the order given, in line to the right of the central gallery of the Palace of Industries. The United States occupied 40,000 square feet, Edison's exhibit alone taking up 8,000. This was the most remarkable display in the hall. The collection

of Elihu Thompson also created much interest. Switzerland excelled in hydraulic apparatus, Belgium in heavy machinery and mining-gear, while no new machines and but few in motion were contained within the section of Great Britain. Fourteen classes of the nineteen belonging to Group VI could be accommodated within the palace. Agricultural machines were exhibited on the Quai d'Orsay, and others in other parts of the Exposition.

Following the Quai d'Orsay were encountered the exhibits of Groups VII and VIII, the various articles of food for man being presented in every process of cultivation and preparation. These included cereals, products of the bakery and cook-shop, eatable fats and oils, milk products and eggs, meats and fishes, vegetables and fruits, condiments and stimulants, sugar and confectionery, and fermented drinks. Two parallel galleries were variously interrupted: in the first instance, after leaving the Champ de Mars, by the Palace of Food Products, containing 3,000 exhibitors, where was to be seen the carved tun of Epernay, holding 200,000 bottles of wine. Rural economy, farm improvements, agricultural statistics, instruction, and works, the cultivation of the vine, and useful and noxious insects, were represented in turn. On the banks of the Seine were special exhibits of fish and oyster culture, and the pavilion of the Maritime Chambers of Commerce of France. Exhibits were made by foreign nations, individually; that of the United States, in particular, being fine, and full of interest. Traffic across the Seine by the bridges of Alma and the Invalides was not interrupted, but both were surmounted by visitors to this part of the Exposition by means of foot-bridges, ascended by steps. At the extremity of the quai, following an English flouring-mill and dairy, and a butter-working establishment, was to be seen the exhibit of the South African Republic. This division of the Exposition was visited by specialists mainly.

The Esplanade of the Invalides, while presenting none of the marvels contained within the Champ de Mars, yet possessed an interest of its own, and was largely frequented. On one side of the broad avenue that divided it were the postal and telegraphic and aeronautic exhibits, and a *résumé* of the Art of War, forming the fifth section of the History of Industry, contained in a large building 480×75 feet, in the style of Louis XIV. Within were materials and processes connected with warfare, retrospective and modern illustrations of the French army, military uniforms and equipments, military bibliography and geography, etc., and the exhibit of the Ministry of Marine. Independent out-buildings contained adjuncts of camp and field service. Following were exhibits of hygiene and public charities, mineral waters, and social economy (a co-operative exhibit by profit-sharing companies), workmen's dwellings, and the Society for Assistance to Wounded Soldiers. Opposite were a model school and a panorama of all Paris; and, returning toward the Seine, a *kampong*, or native Javanese village, and products of the colonies and protectorates of France in the four quarters of the globe, displayed in a central palace, and in pavilions of Cochinchina, Indo-China, Anam, and Tonquin; a pagoda of

Angkor, relic of the art of the Khmers of Cambodia, garrisoned, with the other adjoining buildings, by native colonial soldiers; a model of the Tour de Saldé; native villages, too numerous for detail, of Cochín-China, the Gaboon, New Caledonia, the Congo, and Senegal, in which natives pursued their daily vocations; an Anamite theatre; closing with the interesting and beautiful Tunisian and Algerian palaces, with bazaars, Kabyle houses, and Arab tents.

On the parks and gardens of the Exposition \$500,000 were expended, and in those of the Trocadéro alone 4,500 rose-bushes were in bloom. Fruit-trees were planted, vegetables and herbs also had place, and conservatories were numerous. Special exhibits of interest were the Japanese garden and the Dutch tulips. Eleven shows of cut flowers were held from May 6 to Oct. 23. A rustic house, a restaurant, and an aquarium found room in the grounds, and on the right and left of the palace, in the foreground, by the river, were the Pavilion of Public Works and the Pavilion of Forests, the latter constructed of native French woods. To the collections already occupying the palace itself was added a museum of ecclesiastical art.

During the Exposition more than 100 congresses, national and international, were held at Paris, which made use of the immense "animated cyclopædia" for purposes of demonstration and inquiry, and fifteen grand fêtes were given, either at the Exposition or in connection with it, for which large sums of money were voted by the Government. Those that are to be noted in particular were the commemoration of July 14, the banquet, on Aug. 18, to 15,200 mayors of France, and the opening and closing fêtes of the Exposition itself, the last attended by 400,000 persons. The inauguration was marked by the absence of religious ritual, and also by the presence, unofficial, of all the diplomatic representatives of foreign powers in Paris. Musical festivals were held in the Hall of the Trocadéro, or in the Palais de l'Industrie, notably the rendering of a triumphal hymn by Augusta Holmes. The distribution of prizes took place in the latter building, Sept. 29. Outside the Exposition numerous panoramas and historical restorations were to be seen, the Wild West show of Buffalo Bill attracting crowds of visitors.

Transportation within the Exposition was afforded by a miniature railroad termed the Decauville, connecting the Champ de Mars with the Esplanade des Invalides by the Quai d'Orsay, and running along the Avenue Suffren; 106 steamboats plied on the river, holding from 250 to 300 persons each.

The progress that electricity has made in the decade was forcibly shown by the contrast of the lighting of the two Expositions of 1878 and 1889. The electric lighting of the last was accomplished by 1,150 arc and 10,000 incandescent lamps, which, in contrast with gas here and there, produced a happy effect.

As a whole, the Exposition was a success, before all things, as a triumph of republicanism in France. The financial basis on which it was conducted may be briefly explained as follows: The estimate of expense being 43,000,000 francs, 17,000,000 were contributed by the state, 8,000,000 by the city of Paris, and the remaining 18,-

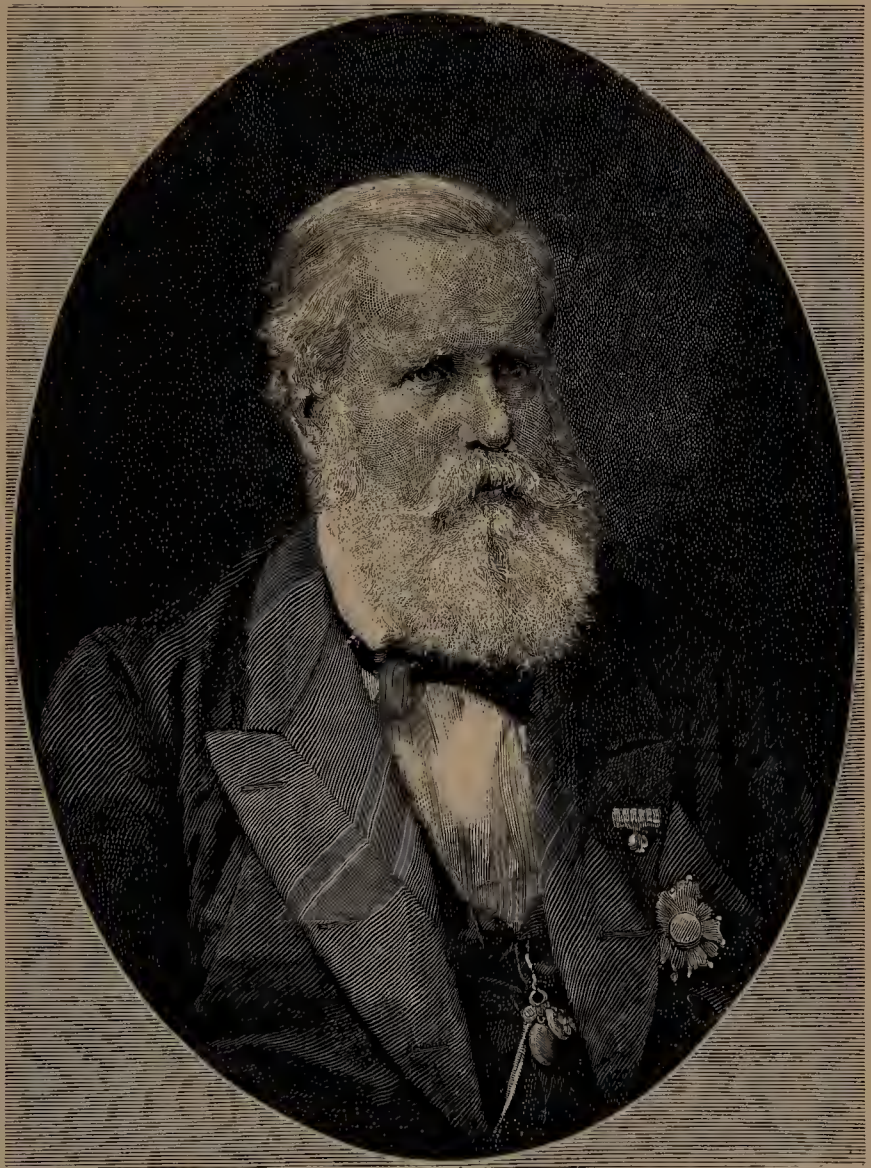
000,000 by a guarantee company, composed of railway corporations, banks, etc., which was subsequently displaced (to enable the Government to issue tickets of free admission) and reimbursed by a second company, contributing 21,500,000 francs. Privilege was obtained to issue 1,200,000 lottery-bonds, of the value of 25 francs each, accompanied each by 25 tickets of admission to the Exposition, the bonds redeemable at par within a period of seventy-five years, without interest, and lottery drawings to be had in the mean time. In return for the privilege, the buildings of the Exposition belonged to the Government. The amount expended by the Exposition Company was \$8,000,000, or 40,000,000 francs, and did not include Government exhibits, or the expenditures of foreign nations individually. The Trocadéro, also, was a relic of the Exposition of 1878. Of the 30,000,000 tickets issued, 28,000,000 were used. The price of these being greatly reduced by the combination of the lottery, the cheapness of entrance enhanced the popularity of the exhibition. After providing to meet their engagements, the guarantee company divided among themselves 3,000,000 francs, but received no return of capital. The city of Paris was indemnified by indirect benefits in excess of its contribution; and, exclusive of the value of the buildings, the Government retained the 3,000,000-franc reserve fund, and received from the sale of privileges, tickets, etc., about 5,000,000 francs.

The officers appointed by the United States Government to attend the Exposition were: Commissioner-General, Gen. William B. Franklin, of Hartford, Conn.; Assistant Commissioner-General, Somerville Pinkney Tuck, of New York city; Expert of Group I, Gen. Rush C. Hawkins, of New York city; of Group II, Prof. Arthur J. Stace, of Notre Dame University, Ind.; of Group III, David Urquhart, Jr., of Helena, Mont.; of Group IV, Prof. William H. Chandler, of Lehigh University, Pa.; of Group V, Prof. Spencer B. Newbury, of Cornell University, N. Y.; of Group VI, Prof. Charles B. Richards, of Yale University, Conn.; of Group VII, A. Howard Clark, of Boston, Mass.; of Group VIII, Charles V. Riley, of Washington, D. C.; of Group IX, David King, of Newport, R. I. Lieut. Benjamin H. Buckingham, U. S. N., Capt. David A. Lyle, Ordnance Dept., U. S. A., Capt. H. C. Cochrane, commanding detachment of U. S. marines, and Lieut. Paul St. C. Murphy, U. S. Marine Corps, acted as aides to the Commissioner-General. The other officers were: Chief Engineer, William C. Gunnell; Secretary, A. Bailly-Blanchard; and Asst. Engineer, B. Abdank. Forty-one jurors and sixteen supplemental jurors were appointed from the United States, which received 58 grand prizes, 226 gold medals, 262 silver, 219 bronze, and 218 honorable mentions. The decoration of Grand Officer of the Legion of Honor was conferred upon the United States Commissioner-General, and decorations of various degrees upon other officers and exhibitors.

PEDRO II d'Alcântara, ex-Emperor of Brazil, born in Rio de Janeiro, Dec. 2, 1825. He is the head in the direct male line of the house of Braganza that has reigned over Portugal from the time that Spanish rule was thrown off and

the independence of the country recovered in 1640. In 1807 the royal family fled to Brazil, and in 1815 the colony was declared a kingdom. After the Portuguese court returned to Europe in 1821, a national Congress, assembled in Rio de Janeiro, on May 13, 1822, chose Dom Pedro, the eldest son of King João, of Portugal, Perpetual Defender, and on Sept. 7 declared the independence of the country. On Oct. 12 Pedro was elected constitutional Emperor under the style of Pedro I. Dom Pedro I, who married the Archduchess Leopoldine of Austria, abdicated on April 7, 1831, in favor of his son, Pedro II. The infant Emperor's sister had succeeded to the throne of Portugal in 1826 as Maria II da Gloria. Pedro II was declared of age and assumed the government on July 23, 1840, and was crowned on July 18, 1841. During his minority the Government was administered at first by a single Regent, Dom Bonafacio de Andrada e Silva, the chief of the Democratic party, and after the defeat of Andrada's party in 1833 by a Council of Regency. He married the Princess Theresa, daughter of King Francis I of the Two Sicilies on Sept. 4, 1843. The Emperor, soon after assuming the government in person, dissolved the Legislature. This measure led to insurrections in São Paulo and Minas-Geraes, the latter requiring the whole military force of the empire for its suppression. From that time Pedro held himself aloof from party struggles. The Democrats rebelled again in 1848 in Pernambuco, but since then the country has been tranquil. On Sept. 4, 1850, the Emperor issued a decree putting an end to the slave-trade. He aided Gen. Urquiza in 1852 to overthrow the dictator Rosas, of the Argentine Republic, obtaining for Brazil as the reward for his armed intervention an enlargement of frontiers and the right to the free navigation of the river Plate. In 1860 he made a journey through the provinces, with a view to ameliorating their economical condition. His power was greatly strengthened by his firm attitude in a dispute

with Great Britain that was settled in favor of Brazil by the King of the Belgians in 1862. In alliance with Uruguay and the Argentine Republic he declared war against Paraguay in 1865, and took part in the first campaign, defeating the army with which Gen. Lopez invaded Brazil. The war was not ended till after the death of Lopez, when a peace was signed on June 20, 1870, giving Brazil an aggrandizement of territory. Dom Pedro in May, 1871, sailed for Europe, visiting England, France (where he at-



DOM PEDRO II., EX-EMPEROR OF BRAZIL.

tended the meetings of the French Geographical Society, which had elected him a corresponding member in 1868), and other countries of the Continent, and returning to Brazil on March 13, 1872. In 1876 he visited the Centennial Exhibition in Philadelphia, and subsequently traveled through Europe and the East, reaching Rio de Janeiro again on Sept. 24, 1877. The Emperor held himself aloof from parties, and devoted himself to measures intended to de-

velop the resources and advance the prosperity of Brazil. His high intelligence and prudent statesmanship made him one of the most popular sovereigns in the world. The great act of his reign was the abolition of slavery. Through his influence the Parliament in August, 1871, gave its approval to a preliminary measure for its gradual extinction. Broken in health and apparently destined soon to die, he left Brazil in 1886 for medical treatment in Europe, resigning the Government into the hands of his elder daughter, Isabel, who was the heir-apparent, the two sons of the Emperor having died in infancy. The Crown Princess, whose husband, Louis Philippe d'Orleans, the Conde d'Eu, was commander-in-chief of the military forces, but very unpopular in the army, was esteemed for her good qualities of heart, but was dreaded and disliked by all classes of Brazilians on account of her religious and political prejudices. Unlike the father, she insisted in interfering in political questions. Pedro had put an end to the political influence of the clergy and destroyed their pretensions to domination by his vigorous attitude toward the bishops in 1874, two of whom were imprisoned for two years. He had signed decrees banishing the Jesuits and other orders, and ordaining that the great possessions of the monasteries should eventually escheat to the state. His daughter recalled the Jesuits, who were not legally permitted to reside in Brazil, and other expelled orders, secured for them the charge of education, gave foreign Jesuits a controlling influence, not only over the court, but also over the secular clergy, who resented their censorship and espionage. The Republicans, who have long formed a majority of the dominant class, although the electoral machinery did not admit of their playing an important part in Parliament, which has always been made up almost entirely of representatives of the party that happened to be in power and in control of the elections, declared that the empire was safe as long as Pedro lived, but that there would be no third reign in Brazil. A measure of the Regent Isabel precipitated the revolution in November, 1889, after the return of the sick Emperor to Philippopolis. The slaves, many of them believing that they were legally free but were held in bondage by their masters without warrant of law, encouraged by the abolitionists, began to run away in great numbers, causing social and commercial confusion. The Regent, in order to put an end to this disturbed state of things, and at the same time perform a meritorious act, signed a decree of general emancipation. The planters, who form the ruling class in Brazil, were prepared for emancipation, but not until they had carried their measures to obtain compensation. By the act of the Regent the ferment was extended to the upper class, the dominant political element. A Republican meeting in Rio de Janeiro was broken up by the Regent's household troop of negro soldiers, called the Black Guard, and all the newspapers cried out against the suppression of free speech. The soldiers and officers of the army had lately shown great laxity of discipline, and when the ministry attempted by disciplinary measures to compel subordination they were driven over in a body to the Republicans. When the republic was proclaimed,

in November, 1889, a delegation waited on Pedro II at his palace at Petropolis, near Rio de Janeiro, and told him that his estates would be left to him and his civil list continued if he would sign an abdication. He said he would yield only to force, and repeated it when the same offers were made to him in prison in Rio de Janeiro. At length, with his wife and daughter and her husband and two children, he was placed on a steamer, and under the escort of a man-of-war was taken to Portugal, where soon afterward the Empress died.

The ex-Emperor is noted for his scientific and literary accomplishments. He has been a member of the French Academy of Sciences since 1877. He is proficient in English and German, as well as in Portuguese, Spanish, and French, and has always been a liberal patron of art, science, and literature, and has taken a deep interest in mechanical progress and in industrial and commercial matters.

PENNSYLVANIA, a Middle State, one of the original thirteen, ratified the Constitution Dec. 12, 1787; area, 45,215 square miles; population according to the last decennial census, (1880), 4,282,891; capital, Harrisburg.

Government.—The following were the State officers during the year: Governor, James A. Beaver, Republican; Lieutenant-Governor, William T. Davies; Secretary of State, Charles W. Stone; Treasurer, William B. Hart, who died on Nov. 8, and was succeeded by William Livsey; Auditor-General, Thomas McCamant; Secretary of Internal Affairs, Thomas J. Stewart; Attorney-General, W. S. Kirkpatrick; Superintendent of Public Instruction, E. E. Higbee, who died on Dec. 13; Insurance Commissioner, J. M. Forster; Chief-Justice of the Supreme Court, Edward M. Paxson; Justices, James P. Sterrett, Henry Green, Silas M. Clark, Henry W. Williams, James T. Mitchell, and J. B. McCollum.

Finances.—The balance remaining in the treasury on Dec. 1, 1888, was \$3,687,035.65; for the year ensuing the total receipts were \$8,465,399.22, of which \$6,528,956.91 accrued to the general fund and \$1,936,442.31 to the sinking fund; the expenditures for the same time were \$8,182,847.34; the balance remaining in both funds on Nov. 30, 1889, was \$3,969,587.53. The expenditures from the general fund were larger than in any previous year, and exceeded the receipts by \$66,281.76. This excess was caused by the large appropriations, including \$2,000,000 for support of schools.

Among the tax receipts were the following items: On corporation stock and limited partnerships, \$1,952,771.54; on gross receipts (corporations), \$517,256.34; on gross premiums, \$49,906.64; on the stock of bank, safe deposit, and trust companies, \$469,900.82; tax on net earnings or income, \$71,668.19; tax on loans—county and municipal, \$144,788.79; private corporations, \$103,530.41.

The following were the more important expenditures: Senate, \$180,740.95; House of Representatives, \$436,754.85; judiciary, \$508,468.94; public printing, \$241,807.14; loans redeemed, \$881,950; interest on loans, \$619,606.04; State College, \$111,440; charitable institutions, \$700,982.80; indigent insane, \$319,043.49; penitentiaries, \$144,723.75; Huntingdon Reformatory,

\$152,350; House of Refuge, \$95,000; Morganza Reform School, \$37,373.17; Soldiers' Home, \$94,250; soldiers' orphans' schools, \$300,228.86; common schools, \$1,072,865.54; National Guard, \$391,784.83; Gettysburg monument, \$83,500.

The State debt on Dec. 1, 1889, was \$13,856,971.28, having been reduced during the year \$881,950 by the retirement of bonds representing that value. The assessed valuation of personal property liable to the State tax for 1889 was \$446,815,803.16, the three-mill levy on which yielded a revenue of \$1,340,447.40.

Legislative Session.—The regular biennial session of the State Legislature began on Jan. 1, and adjourned on May 9. Early in the session the two proposed constitutional amendments adopted by the Legislature of 1887 were readopted, and provision was made for their submission to the people at a special election on June 18. These amendments prohibit the manufacture and sale of intoxicating liquors, abolish the poll-tax qualification for voting, and reduce the length of residence in any election district, required of voters, from two months to thirty days. A new revenue law, passed at this session, provides for a State tax of three mills, to be levied on "all mortgages, all moneys owing by solvent debtors, whether by promissory note, or penal or single bill, bond, or judgment; all articles of agreement and accounts bearing interest; all public loans, except of the Commonwealth or the United States; all loans issued by, or shares of stock in, any bank, corporation, association, or limited partnership, except such as are hereafter mentioned as liable to or exempt from a tax on their capital stock; "all moneys loaned or invested outside of the State; and all other moneyed capital in the hands of individual citizens of the State." The same rate shall be assessed upon vehicles used for hire, and upon annuities over \$200. These taxes shall be collected and paid over by the counties to the State treasurer, who shall refund to them one third for the expenses of collection. All corporations, joint-stock associations, and limited partnerships, except banks, savings institutions, foreign insurance companies, and manufacturing corporations, shall pay a tax of half a mill or three mills upon their capital stock, according as their total annual dividends reach or fall short of 6 per cent. on the stock. Railroad, pipe-line, canal, steamboat, express, palace and sleeping car, and certain other transportation companies, and telegraph, telephone, and electric light companies shall pay eight mills on their gross receipts from traffic or business wholly within the State. Domestic insurance companies shall pay the same rate upon the gross premiums and assessments received from business in the State, and foreign insurance companies 2 per cent. of the gross premiums from business in the State. Banks and savings institutions that elect to pay a six-mill tax on their shares shall be exempt from local and State taxation, except for real property held by them. Otherwise their shares will be liable to the three-mill State tax, besides local taxes. The net earnings or income of certain other corporations or limited partnerships shall be subject to a tax of 3 per cent.

An act for the protection of miners establishes "miners' examining boards" in the anthracite

coal region, and provides that no one shall be allowed to engage as a miner in any anthracite coal mine unless he has been granted a certificate by such board. No one shall be granted a certificate unless it is shown that he has had two years' practical experience as a mine laborer. The annual appropriation for public schools was increased from \$1,500,000 to \$2,000,000. Other acts of the session were as follow:

Providing that no minor shall work in any manufacturing establishment longer than sixty hours a week; that no child under twelve years shall ever be employed in such places; that well-holes and machinery shall be properly protected; that at least forty-five minutes shall be allowed employees for their noon meal; that proper heat, light, ventilation, and sanitary arrangements shall be furnished; and that a factory inspector shall be appointed by the Governor.

To authorize the chartering of associations of employees for their mutual aid and benefit in their trade concerns.

To punish persons that unlawfully use or wear the insignia of the Loyal Legion or the Grand Army of the Republic, or the Union Veteran Legion.

Providing for the establishment and maintenance of a nautical school at Philadelphia for the training of youth in navigation, on some vessel furnished by the State or the United States. Also, to provide for the organization of a naval battalion, which shall form a part of the State militia.

Giving persons on bicycles and tricycles the same rights and duties on the public highways as persons in carriages drawn by horses.

Making the first Monday in September a legal holiday, to be known as Labor Day.

Assenting to the act of Congress establishing agricultural experiment stations, and appointing the Pennsylvania State College to receive the benefit of the act.

Enabling State banks to become national banks.

Providing a new law regulating escheats.

Prohibiting the sale of cigarettes to persons under sixteen years of age.

Consenting that the United States may purchase the Gettysburg battle-field, ceding jurisdiction over it when purchased, and exempting it from taxation.

Appointing a commission to find some means of reducing or utilizing the waste of coal-mining.

To prevent discriminations between insureds of the same class in life-insurance policies.

Providing that the officer or agent of any public or private banking or savings institution who receives deposits, knowing that the institution is insolvent, shall be guilty of embezzlement.

Punishing persons defacing or injuring public statues and monuments.

Providing that payments, rentals, or royalties charged on coal or mineral land may be mortgaged in the same manner as the land itself.

Providing for the incorporation and regulation of savings-banks and institutions without capital stock established for the encouragement of saving money.

Establishing a commission to care for and maintain, at the expense of the State, all soldiers' children who shall remain in the soldiers' childrens' homes on June 30, 1890, the date at which such homes shall be closed by law, and to continue such care till the children reach the age of sixteen years.

Education.—For the school year ending in 1889 the following are the statistics: Districts, 2,317; schools, 21,889; graded schools, 10,117; male teachers, 8,191; female teachers, 15,726; monthly salary, male teachers, \$39; monthly salary, female teachers, \$30.31; pupils enrolled, 954,409; average attendance, 687,355; tuition, \$6,669,797.51; new buildings and rent, \$2,054,004.39; total cost of schools, \$11,902,260.82.

At the twelve State normal schools the number

of students in 1888 was 5,845, and in 1889, 6,278. Of these, 1,320 in 1888 and 1,373 in 1889 were in the model schools, and 4,533 in 1888 and 4,969 in 1889 were in the normal departments. The expenditures for 1888 were \$487,632.36, and for 1889 \$551,808.71. The State appropriation for 1888 was \$85,000, and for 1889 \$138,750.

Charities.—In the State hospitals 1,523 insane patients were admitted during the year ending Sept. 30, 1888, and within the same period 1,173 were discharged, showing an increase of but 350 during the year.

The number remaining in the hospitals at the close of the year was 4,572. There were at the same time 541 patients in private hospitals and houses, 744 in the Philadelphia Hospital, 588 in almshouses, and 65 in prisons. In 1883 there were 1,510 insane persons in the almshouses. The reduction since that time has been caused largely by the efforts of the Commission of Lunacy to secure transfers to the State hospitals.

Prisons.—For the fiscal year 1888 the population of the two State penitentiaries shows the following changes: Eastern Penitentiary—number of convicts at beginning of year, 1,053; received during year, 570; discharged, 509; remaining at close of year, 1,114. Western Penitentiary—convicts at beginning of year, 679; received during year, 248; discharged, 274; remaining, 653.

The Brooks High-license Law.—Under this law, which went into effect June 1, 1888, applications for license are advertised and must be made at least three weeks before the first day of hearing; the application must be accompanied by the bond of two persons not engaged in the liquor business, in \$2,000 each, and by the indorsement and petition of twelve reputable electors of the same ward. The fee is \$500. Violation of the provisions of the law includes imprisonment as a necessary part of the penalty. Licenses are granted only by the Court of Common Pleas; and, after all these conditions have been fulfilled, the court still has unlimited discretionary power. The enactment of this law aroused the deepest feeling. When, therefore, in the spring of 1888, the licensing court began its hearings, it was in the midst of an intense general interest, especially in Pittsburg and Philadelphia, where it soon became evident that the judges intended to exercise their discretionary power to its full extent. In Philadelphia the number of licenses granted the year before the enactment of the Brooks law was 5,773. The licensing court in 1888 granted but 1,347, and in 1889 only 1,205. Through the State there was no such marked effect, because, except in the two cities named, the special feature of the law (license by the court) had existed before; and as the principle of the new law was not essentially different, neither was the manner of executing it. The best results in the cities named are directly traceable to the large discretionary power that the law confers upon the court. High-license fees alone would not have effected the great reduction in the number of saloons, as was shown by the fact that at both sessions of the court the number of applications was between 3,000 and 4,000. But, in an appeal of the Prospect Brewery Company, which had been refused a license, the Supreme Court, reversing the decision of the

lower court ("Weekly Notes of Cases," vol. xxiv, p. 177), held that the issuance of a license to such wholesale dealers—those who sell not less than a quart—as have fulfilled the form of the law, is mandatory. The phraseology of this decision, perhaps not less than its conclusions, led the lower court to the unusual course ("Weekly Notes of Cases," vol. xxiv, p. 198) of making a public reply. The effect of the decision was an immediate impairment of the force of the law, but it suggested a remedy. The Law-and-Order Society of Philadelphia publish statistics of the first ten months' operation of the law, which show a decrease in the commitments to the county prison of 37 per cent.; and, according to the official records of mortality, the deaths from alcoholism within the time of the operation of the Brooks law have been reduced 60 per cent., and from *mania a potu* more than 50 per cent.

Prohibitory and Poll-Tax Amendments.

—Soon after the action of the Legislature, in passing the prohibitory amendment, rendered it certain that the question of constitutional prohibition would be submitted to the people this year, a State Prohibition Convention was called, to meet at Harrisburg on Feb. 18, for the purpose of organizing for the canvass. There were 774 delegates, representing every county in the State. A State Amendment Canvass Committee was appointed, containing one representative from each county, and resolutions were adopted declaring the entire unanimity of all Prohibitionists in this movement. The committee gathered funds, brought speakers from other States, and made provision for a thorough and systematic canvass. But the amendment received at the June election but slightly more than one third of the entire vote cast. The exact vote was: Yes, 296,617; no, 484,644.

For the amendment abolishing the poll-tax qualification for voters, and reducing the time of residence in any election district required of voters from two months to thirty days, no special efforts were made by any organized committee or party. This proved to be even more unpopular than the prohibitory amendment, receiving only 183,371 affirmative to 420,323 negative votes.

Floods.—The ruin wrought in Pennsylvania by the floods in the last days of May and the early ones of June, 1889, was not confined to Johnstown and the valley of the Conemaugh (see JOHNSTOWN). Great havoc was effected over an extended region in the central and western parts of the State. Next to Johnstown, the loss at Williamsport, on the west bank of the Susquehanna, was most notable. The flood here rose to the height of thirty-four feet, and the great Susquehanna boom of 200,000,000 feet of logs and 40,000,000 feet of sawed lumber was scattered in one great wreck over the country. Mills and other industrial establishments were utterly ruined, and not a few lives lost. The flood-mark was seven feet higher than ever known before. The streams had risen steadily during four days, and reached the full flood-mark on Saturday night, June 1st. For many miles the adjacent valley was a great lake, and fully three quarters of the city was submerged from three to five feet. The main element of the business interests of Williamsport, which is that of lumber, was for the time ruined. Many of the scenes of danger,

exposure, and rescue were almost as thrilling as those of Johnstown, but the loss of life was comparatively small. The railroad tracks and bridges of the Pennsylvania Central and Northern Central roads were all swept away. There was great destruction to property and considerable to life through the entire Juniata valley, in the central part of the State. The worst ruin occurred between Tyrone and Lewiston, especially about Huntingdon City. At this point people had been compelled to flee for their lives on the night of May 30, and at daybreak only the chimney-tops were visible over the raging waters. The only fragment of a bridge left in the county was that of the Huntingdon and Broadtop Railroad. The loss of values in railway bridges alone reached \$200,000. In Clinton County, of which Lockhaven is the principal town, there were twenty-seven lives lost, but in Lockhaven itself people had minded a timely warning and removed their furniture and household gear to high ground. The aggregate of lives lost in the numerous small towns of the Juniata and Susquehanna valleys was, however, not inconsiderable. In the latter-named region, next to Williamsport and Lockhaven, the places that suffered most in property loss were Clearfield, Tyrone City, Mill Hall, and Renovo. Sunbury, which is at the junction of the two branches of the Susquehanna river, is a great center of the iron, coal, and lumber industries. The loss of life here was fifty, and that of property enormous, reaching nearly \$3,000,000. The main havoc was wrought in Clearfield, Clinton, Lycoming, Elk, Cameron, Northumberland, Centre, Indiana, McKean, Somerset, Bedford, Huntingdon, Blair, and Jefferson counties, aside from Cambria County, where the Johnstown disaster dwarfed all others. In the Alleghany valley, in the vicinity of Dubois, Red Bank, New Bethlehem, and Driftwood, the loss was also very large, as it swept away every saw-mill from one of the leading lumber regions of the State. The earlier and exaggerated estimate of loss to the State, including the damage done to corporations, was \$40,000,000. More careful and conservative computation, estimating salvage, reduces these figures to nearly \$25,000,000, though exact statements have been difficult to obtain. The total loss of life in the State by the floods (exclusive of Johnstown and the Conemaugh valley) was about two hundred.

The pathway of destruction in the State was mainly along the route of the Pennsylvania Railway and its branches, the Northern Central and Philadelphia and Erie. The actual mileage of breaks and washouts was a little over thirty-six miles, though these extended over a total length of nearly two hundred miles. No official statement has ever been made of the losses to the Pennsylvania Railroad, nor is it possible to obtain them. These must reach several million dollars, as much more expensive bridges have been erected in many cases than those existing before. To any estimate of loss must be added, too, that which is caused by interruption of traffic—a widespread and serious one.

Political.—On August 7 a Republican State Convention was held at Harrisburg to nominate a candidate for State Treasurer. The convention selected Henry K. Boyer by acclamation, and

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adopted a platform which contained, among others, the following declarations:

If protection to American industry be the cornerstone of our political faith, then protection to those who fought in defense of the Union is its capstone. We advocate such amendments to the pension laws as will make adequate provision for all honorably discharged veterans of the late war, whose advancing years, wounds, or other infirmities disable them from total or partial self-support. Those who saved the nation from dissolution should be saved by the nation from penury, and we heartily commend the wise and friendly liberality shown by Commissioner Tanner to his brother soldiers in the conscientious discharge of the duties of his office.

The Republican party having in 1886 declared in favor of the submission of the question of the prohibition of the manufacture and sale of intoxicating liquors to a vote of the people, and having, in two successive Legislatures, through the methods ordained by the Constitution and in spite of Democratic opposition provided the machinery for reaching a fair expression of the public sentiment, and the vote, to secure which it was pledged, having been taken, declares that it has fully and honorably fulfilled its compact.

In view of the result of said election and having regard for the preservation of the purity of the homes of our Commonwealth, we heartily indorse the Brooks high-license law, and recommend such amendments thereto as will tend to its proper and progressive improvement, and also bring within its scope the control of wholesale liquors.

The Prohibitionist State Convention met at the same place on Aug. 28, and nominated J. R. Johnston for State Treasurer. The platform declares in favor of the Australian ballot system, and of more rigorous naturalization laws. Since both the Republican and Democratic parties are pledged to the legalization of the liquor-traffic, good citizens of whatsoever previous party affiliation, who favor the abolition of the drink-traffic by legislative and constitutional enactments, are invited to unite with the Prohibition party.

The Democrats met in State Convention at Harrisburg on Sept. 4, and selected Edmund A. Bigler as their candidate. The resolutions adopted demand a revision and reduction of the tariff taxes, condemn all forms of "trusts," oppose the indiscriminate granting of pensions, and include the following:

We accept the decision of the people of Pennsylvania rendered by the ballot on the prohibitory amendment as a declaration in favor of a reasonable, just, and effective regulation of the traffic in ardent spirits.

We hold the Republican party responsible for the failure to pass any law for the relief of the manual laborers of the State of Pennsylvania, and we recommend the enactment of such laws as will give equal protection and equal opportunities in every branch of industry to all citizens irrespective of race, religion, or nativity.

We favor the Australian ballot system.

At the election in November, Boyer received 341,244 votes, Bigler 280,318, and Johnston 22,401. The total vote was more than 100,000 less than that for Treasurer in 1887, and nearly 150,000 less than the total vote on the prohibitory amendment in June.

Philadelphia's New Charter.—The new city charter, known popularly as the "Bullitt bill," and technically as "An act to provide for the better government of cities of the first class in this Commonwealth," became a law in 1885, and by ordinance of councils became operative

in Philadelphia (the only city of the first class in Pennsylvania) in April, 1887. The grave political problem presented in the government of cities had been treated by Gov. Hartranft in his message of Jan. 4, 1876, and a commission of eleven citizens, whom he appointed by direction of the Legislature, prepared a uniform code of city government, with only such variations as the necessities of different classes of cities required. Their report, with its accompanying code, was referred to a committee of the Legislature, but was never brought up for action, being prevented by influence from Philadelphia.

But the continued aggravation of the evils, together with the steadfast purpose of a number of citizens to secure better government, led in 1882 to an effort to have the principal features of the code applied to Philadelphia. A committee, one of whom was John C. Bullitt, a member of the Philadelphia bar and one of the original Commission of Eleven, drew up the bill. It was introduced in the Legislature in 1883, but failed; it was presented again in 1885, and this time it was successful. In its general features the Bullitt bill is the same as the code prepared by the Commission of Eleven. It differs from that in the fact that it makes the offices of solicitor, comptroller, and treasurer elective; whereas, under the commission's code, all the chief public officers were the appointees of the Mayor or the Councils. It runs the same strict line between the legislative and the executive branches of the city government, takes from Councils all executive functions, and vests them in the Mayor. It removes the great temptation of the executive to engage in politics by making him ineligible for a second term; it forbids city officers to participate in political conventions; it forbids removals for political reasons; it establishes civil-service rules; it assumes, as axioms of good business management in city government that there should be but one executive head; that the departments should be so related to one another, through a common head, that they may be administered economically and with reference to one another; that there should be given to each officer power commensurate with responsibility—power to direct, to call to account, to remove. The bill may be characterized as an effort to assimilate the city government to the plan of the national Government. The Mayor is the chief executive, and the heads of departments are his advisers—his cabinet. The following departments are authorized and the creation of any other forbidden: Public Safety, Public Works, Receiver of Taxes, City Treasurer, City Controller, Education, Law, Charities and Correction, Sinking-fund Commission. The greatest change is made in the Mayor's office, and the greatest enlargement of power given. Nominally, under the old system, he was the chief executive of the city; actually he was nothing but chief of police. Under the Bullitt bill he is made responsible for the good order and efficient government of the city. He is given the power of appointing (and of removing for just cause) the directors of Public Safety and of Public Works. The character of his appointments to these places makes him therefore ultimately chargeable with the efficient administration of all matters pertaining to health, fire, police, inspection of buildings, mar-

kets, water and gas works belonging to the city, construction and repair of public buildings, bridges, and all matters affecting highways, wharves, etc. He is made the actual head of the city government; he can review the administration of these departments, and call to account or remove any officer appointed by him. He convenes the heads of departments for consultation and advice at least once a month. He is a member *ex officio* of all boards, except the building inspectors, may participate in their proceedings and vote whenever he deems it advisable, and may appoint three competent persons to examine without notice the accounts of any city department or trust officer, and the money, securities, and property in their charge. The controller is elected once in three years. He audits the accounts of the departments, and receives a detailed statement of their receipts and expenditures monthly. He is not to permit any appropriation to be overdrawn or the appropriation for one item of expense to be drawn upon for any other purpose, nor unless sufficient funds out of which said warrant is payable shall actually be in the treasury at the time. No contract shall be entered into by Councils or by committees directly, but they shall designate by ordinance some officer to do so. Contracts must be countersigned by the comptroller. Every contract for public improvement must be based upon the estimate of the whole cost, and no bid in excess of such estimate shall be accepted. Every contract shall contain a clause stating that it is subject to the provisions of this act, and the liability of the city is limited by the amounts that have been or may be appropriated. No contract may be made with a councilman or employé of the city, or with any firm of which he is a member.

PERU, a republic in South America. (For details relating to area, population, etc., see "Annual Cyclopædia" for 1883.)

Government.—The President is Gen. Andres Avelino Cáceres, whose term will expire on June 3, 1890. The Cabinet is composed of the following ministers: Interior, Police, and Public Works, Don Pedro A. del Solar; Foreign Affairs, Don Manuel Urigoyen; Justice, Don Guillermo A. Sesane; Finances, Don Eulogio Delgado; War and Navy, Don Guillermo Ferreyros. The American Minister at Lima is John Hicks; the Consul at Callao, Henry May Brent. The Peruvian Minister at Washington is Don Felix Cipriano C. Zejavra. The Peruvian Consul-General at New York is Don Juan Quintana.

Finances.—The home debt amounts to \$136,246,870, and includes \$87,010,923 paper money and Inca notes. The foreign debt of £32,000,000 has been canceled through the consummation of the so-called Grace contract with Peruvian bondholders. The income of the state in 1887-'88 was \$16,183,674, and the outlay \$13,632,386.

Army and Navy.—The strength of the regular Peruvian army was fixed for 1888 at 4,000 rank and file, consisting of 6 battalions of infantry; 2 regiments of cavalry; 3 field battery pieces, and one battery of mitrailleuses. The police force is 4,000, of whom 800 are mounted. The navy is reduced to three medium-sized steamers, the newest of which, the gunboat "Lima," arrived from England in 1889.

Postal Service.—There were in operation in 1887 330 post-offices, which handled 1,799,843 ordinary items of mail matter, and 33,846 registered letters, the receipts being \$90,220, and the expenses \$104,440.

Gold Mines.—The famous gold mines of the province of Carabaya—department of Puno—were formerly worked extensively by the Spaniards and Portuguese, but were subsequently abandoned, partly on account of the attacks of savages, and partly because of revolutions. In December many quartz and placer mines were being taken up, as, with the advance of civilization and improvements in the roads, enterprise is taking rapid strides in that district.

Commerce.—In 1887 the import of merchandise into Peru amounted to \$8,658,531, and the export to \$8,872,287. The American trade with Peru presents these figures:

FISCAL YEAR.	Import from Peru.	Domestic export to Peru.
1886.....	\$963,450	\$798,577
1887.....	461,726	717,968
1888.....	309,040	865,160
1889.....	314,032	773,244

There entered the port of Callao, in 1888, 501 sea-going vessels, of which 296 were steamers, with an aggregate tonnage of 249,873, and, 816 coasting craft, while the departures in the same year were 507 vessels, 299 being steamers registering together 340,332 tons, and 829 coastwise craft.

PHOSPHATES. SEE APATITE.

PHYSICS, PROGRESS OF, IN RECENT YEARS. **Constitution of Matter.**—In a paper before the Physico-Economic Society of Königsberg, on April 5, 1888, Prof. F. Lindemann made an attempt at a comprehensive mathematical treatment of physical and chemical forces. Assuming Sir William Thomson's theory of the structure of molecules, he endeavors to explain why metallic reflection and double refraction are accompanied by little or no dispersion, and also applies the theory to chemical, electrical, and other phenomena. (See "Electricity.")

Mechanics. *Dynamical Nomenclature.*—The controversy as to the proper use of the names "weight" and "mass" continues, mathematicians defining the former as the force with which the body in question is drawn toward the earth, and the latter as the quantity of matter it contains; while engineers generally discard the latter altogether, using the word "weight" instead, and substituting "force" for the mathematician's "weight."

Thus with the mathematician a pound is a mass or quantity of matter, and the force with which it seeks the earth is "the weight of a pound." The same two things with the engineer are "the weight of a pound" and "the force of a pound." This difference of nomenclature, which makes such confusion in the minds of beginners, seems unlikely to be settled, each side being unwilling to abandon its own ideas.

Prof. Simon Newcomb in the "Philosophical Magazine" for February, 1889, points out that the ordinary definition of mechanical work involves the word "motion," which is a relative term. Hence one might conclude that the word

"work" has no absolute meaning. He advises a restatement of Newton's third law so that it may say explicitly that "No force ever acts except between bodies," and a new definition of work, making it "the product of a force by the amount by which the two material points between which the force acts, approach, or recede." He also remarks that the case is entirely different with energy, which is really a relative term, the law of conservation of energy assuming that we refer all the motions of the system under consideration to some foreign body of infinite mass.

Potential Energy.—At the meeting of the National Academy of Sciences at Washington, on April 20, 1888, Prof. Alexander Graham Bell exhibited an air-tight apparatus shaped like the bellows of an accordion. This would remain in whatever shape it was bent, till the air was exhausted from it, when it became as elastic as if made of steel springs. This effect, due to the pressure of the outside air, suggests that ordinary elasticity may depend in some way on the pressure of a medium.

Gravity.—M. Defforges, in a communication to the Paris Academy (January, 1888), showed that in pendulum experiments to determine the intensity of gravity, the effect of the support and the curvature of the knife edge may be eliminated by using two pendulums on the same knife edge, and of the same weight, but of different lengths.

Dr. Thiessen described to the Berlin Physical Society, Dec. 14, 1888, his experiments on the amount by which gravity varies with height, the results showing that one kilogramme varies by .28 milligramme for each metre. The method used was a modification of that of Jolly.

H. Résal has made experiments to see whether the resistance of the air changes the direction of the axes of the ellipse in which a pendulum is vibrating, and finds that it does not, merely lessening both axes and increasing the eccentricity.

Piers Bohl (Wiedemann's "Annalen," February, 1889,) has calculated from the observations of Regnault and others that the law of Newton is applicable even to molecules, thus governing cohesion as well as gravity.

Duration of Impact.—Prof. Peter G. Tait (Edinburgh Royal Society, July 1, 1889,) has investigated the time of impact as depending on the masses of the impinging bodies. He finds that the distortion is proportional to a power of the kinetic energy.

Motion of Projectiles.—Prof. Neesen (Berlin Physical Society, Nov. 30, 1888), has devised a method of registering photographically the oscillations of a projectile. The projectile used is hollow and has a small round hole at its point. A sensitive plate is contained in the cavity, and when the projectile is fired toward the sun the oscillation causes the ray of light admitted through the hole to describe a curve on this plate.

Plasticity.—From experiments on glacier and other ice, James C. McConnel and Dudley A. Kidd (London Royal Society) conclude that a single ice crystal is not plastic and that the plasticity of masses of ice is due either to the rearrangement of crystals or to action at the interfaces. This suggests the query whether the plasticity of other bodies may not be due to a similar crystalline structure.

Liquids and Gases. *Solution.*—Prof. J. H. van't Hoff thinks that he has established an analogy between the laws of dilute aqueous solutions and those laws of gases that are known as Gay Lussac's, Boyle's, and Avogadro's. If such solutions are placed in a vessel whose walls are permeable to water, but not to the dissolved substance, and the vessel is placed in a large quantity of water, water will pass into the vessel till the difference of pressure (called osmotic pressure) between the outside and inside reaches a value that depends on the concentration and temperature of the solution. At constant temperature, this pressure is proportional to the concentration, and for a given concentration to the absolute temperature. Prof. van't Hoff explains these results theoretically, and concludes that "under equal osmotic pressure and at the same temperature equal volumes of all solutions contain the same number of molecules, and the same number that would be contained in a gas under the same conditions of temperature and pressure." Many physicists think that these results will not hold with all substances in solution and that the experiments cover too small a range. In France, Gouy and Chaperon find that it is thermodynamically necessary that the permanent state of a solution shall be one of increasing density downward according to a determinate law, and they have determined the rate of increase of density for several substances.

When a saturated solution is heated, as is shown by the experiments of Mr. C. Chree, solution is checked by the passage of an electric current. W. Wirtz (Wiedemann's "Annalen," July, 1889) finds that electrification decreases the evaporation of solutions so long as they are free from solid matter, positive electricity having a greater effect than negative. This decrease lessens as the solution contains more and more solid matter, and finally changes to an increase. (See also CHEMISTRY.)

Crystallization.—In a paper before the Philosophical Society of Cambridge, England, on May 21, Prof. G. D. Liveing showed that when a substance passes from solution to the solid state the molecules on the surface must be as near together as possible. From this he deduces the various crystalline systems, and also accounts for the formation of plane faces when a crystalline solid of any shape is dissolved slowly.

Internal Friction.—P. de Heen ("Bulletin of the Belgian Academy") finds that in air this is inversely as the two-third power of the absolute temperature at atmospheric pressure. The variation increases as the pressure decreases, becoming a maximum at a pressure of 300 millimetres of mercury.

Boundary of Solids and Liquids.—G. Quincke (Berlin "Berichte," July 12, 1888) finds that when thin films of albumen, glue, or similar substances are allowed to dry on mercury, the periphery forms a sine curve lying on a vertical cylindrical surface. The thinner the lamina and the greater its diameter the greater the number of elevations and depressions and the smaller their vertical height.

Particles in Liquids.—Carl Barus ("American Journal of Science," February, 1889) gives a new explanation of the fact that fine particles subside almost instantaneously in some liquids (e. g.,

ether or solutions of salts) and slowly or not at all in others (e. g., water). By careful measurements of their density, he concludes that Prof. Brewer's theory of colloidal swelling of the particles is not sustained by the facts. From the consideration that the potential energy of the system must be a minimum in all states, he concludes that in water the distribution must be Particle—water . . . particle—water, whereas in ether it is particle—particle . . . water—water; that is, the particles subside in the latter case and not in the former. Gouy (Paris Academy, July 15, 1889) has investigated the so-called Brownian movement of small particles suspended in a liquid, and opposes the views of those who regard it as caused by something outside the fluid. He thinks it reveals a constant state of agitation in the liquid, perhaps the result of calorific molecular movements.

Atmospheric Dust.—John Aitken, of Edinburgh, has estimated the number of floating dust particles in the air by effecting successive condensations of vapor by sudden partial exhaustion within an air-pump. Aitken's previous researches prove that in such a case each dust particle forms a nucleus for condensation. By counting such of the minute drops as fall on a square inch of polished silver, the number of particles was estimated. The experiments, which require great delicacy of manipulation, showed the following numbers of dust particles per cubic inch for air from various sources:

Outside air—raining	521,000
Outside air—fair	2,119,000
Room	30,318,000
Room, near ceiling	88,346,000
Bunsen flame	489,000,000

Boyle's Law.—E. Van der Ven (Wiedemann's "Annalen," October, 1889) in experiments on the departure of gases from Boyle's law, under a pressure less than one atmosphere, finds that if the volume of air under small pressure be doubled, it behaves as if its elasticity decreased with the pressure. (See also *Liquid and Gaseous States*, under "Heat.")

Sound. Velocity of Propagation.—Capt. Journee, of the French army (Paris Academy, Jan. 23, 1888), finds that when a projectile flies faster than sound it produces a report as it moves, so that the noise comes to the observer along a line at right angles to the flight. This shows that when air is displaced at a greater velocity than that of an ordinary vibration along it an explosive report is the result. J. Violle and Theodore Vautier described to the same society, on April 3, experiments that showed that the velocity of sound diminishes with the intensity, and that its pitch has no influence on the velocity. E. Mercadier (Paris Academy, February, 1889) has measured the velocity of sound in fine wires of different metals by observing, first, their elastic lengthening, and, second, their longitudinal vibrations. Theory requires a small difference in the velocities measured by these two methods. This was detected by the device used in the second method, a thin style recording the vibrations on smoked glass. The difference referred to was thus observed to be from 1 to 3 per cent. of the mean value.

Differential and Summational Tones.—Prof. Preyer (Berlin Physical Society, Feb. 8, 1889)

thinks that these tones have no objective existence, and that the first are caused by covibration in the outer ear. When two forks are vibrated and then damped, a third fork held to the ear gives beats with their differential tone. Summational tones appear to be really differential tones due to the fundamental and overtones.

Quality of Musical Sounds.—Prof. W. Le Conte Stevens, of Brooklyn, from experiments with the wave siren of Rudolph Koenig, concludes that a difference of phase between the components of a musical sound is a distinct element in the determination of its quality, or timbre.

Radiophony.—Messrs. E. Mercadier and Chapéron have shown that if a galvanic couple be constructed of silver sulphate and silver in acidulated water and placed in circuit with a telephone, while an intermittent beam of light is thrown on the sulphate, sounds will be heard in the telephone, owing to corresponding variations in the electromotive force of the couple. Other combinations may be similarly used.

Recording and Reproduction of Speech.—Alexander Graham Bell described before the Fortnightly Club in Washington, D. C., in May, 1888, the discoveries of Dr. Chichester Bell on the effect of sounds on a jet of fluid. Its vibrations may be distinguished if a rubber diaphragm is placed in the water and connected with a hearing-tube. In Prof. Bell's experiment the jet was discharged on a glass plate, spreading out in a film. The glass was opaque, save for a small slit, behind which moved a band of sensitized paper. The line that was produced on the paper by passage of light through the film and slit, formed, when the impression was transferred to gelatine, a series of elevations and depressions corresponding to the vibratory thickening and thinning of the film. The inventor thinks that it will be possible to reproduce speech by this method. In England a jet of acidulated water has been made to serve as a long-distance telephone transmitter by letting it fall on two metallic electrodes. The improved phonograph of Thomas A. Edison, perfected during 1888, now employs a cylinder covered with wax instead of tinfoil, as formerly, which is made to rotate uniformly by means of electricity instead of by hand. The instrument records and reproduces sounds by the same method as the old one, but with greater accuracy.

Sensitive Flames.—The method of acoustical investigation by means of these flames has been successfully used by Prof. W. Le Conte Stevens to establish many analogies between light and sound waves which hitherto have not been verified experimentally. Thus he detected the acoustic diffraction bands produced by sending waves in the same phase through adjacent small holes, and also those produced by Fresnel's experiment with mirrors inclined at nearly 180° .

Heat. Thermometry.—Among sensitive instruments for measuring very low temperatures are the new gas thermometers of James T. Bottomley and L. Cailletet. The latter (Paris Academy of Sciences, April 9, 1888), is charged with hydrogen as the expanding body, and has been used by the inventor, with M. Bouty, in the measurement of electric resistances at low temperatures. It indicates a change of 1° by a difference of height of 2.36 millimetres. A method

has been devised by Dr. Müller-Erbach for the determination of mean temperature by the vaporization of water (Berlin Physical Society, March 2, 1888). A bulb blown on the end of a glass tube is half filled with water and introduced into a flask whose bottom is covered with sulphuric acid. From the weight of water that is vaporized in a given time the mean temperature is calculated by a formula that Dr. Müller has deduced from Dalton's law of tensions. Mr. R. Assmann has devised a method of protecting a thermometer from direct radiation by inserting the bulb in a tube of polished nickel-plated brass, through which a current of air is drawn rapidly by an aspirator. Two of these instruments, one exposed to a July sun and the other in the shade, showed no perceptible difference. C. Vernon Boys exhibited to the Royal Society of London, in May, 1888, his radio-micrometer, consisting of a thermo-electric circuit of antimony, bismuth, and copper, suspended in a strong magnetic field by an exceedingly fine torsion fiber of quartz. Radiant heat falling on it excites an electric current, which the magnetic field tends to rotate. The instrument will show a difference of temperature of one ten-millionth of a degree C. The radiograph of Louis Oliver (Paris Academy of Sciences, March 19, 1888), is a Crookes radiometer, whose vanes, as they revolve, close an electric circuit which by means of a relay moves a needle across a scale. The new micro-radiometer of Prof. Weber is a Wheatstone's bridge, one arm of which consists of a thin tube filled in the middle with mercury, but at the ends with zinc-sulphate. Each end terminates in a metal case with one side of rock salt. When one of these is exposed to radiation the air in it expands, pushing back the sulphate and increasing the resistance. The balance of the bridge is thus destroyed, and the galvanometer needle moves. The moon's rays falling on the instrument caused a deflection of five divisions. The mathematical theory of Langley's bolometer was given by Dr. H. F. Reid in the "American Journal of Science" for February, 1888.

Calorimetry.—Prof. Neesen, of Berlin, has devised an ether calorimeter whose sensitiveness is two thousand times greater than that of an ice calorimeter, and by which extremely small masses may be examined. The object is placed in a tube which is surrounded by a layer of lamp wick, that dips into ether at its lower end. Into this ether dips also a tube communicating with a horizontal capillary tube that contains some ether as an index, and by a parallel capillary tube with a second similar calorimeter on the other side. The movement of the index indicates the evaporation of the ether on the lamp-wick, and thus the amount of heat lost by the body to be examined; the ordinary evaporation is balanced by that in the second calorimeter, which would have an equal and opposite effect on the index. The apparatus can also be used for the measurement of radiant heat. M. E. Mathias described before the Paris Academy on April 16, a calorimeter in which the constant temperature was other than the usual one of melting ice. He compensates the refrigeration of water that is cooled by the vaporization of a liquefied gas by means of heat from a known source. Dr. Dieterici described to the

Berlin Physical Society, on May 13, his experiments on the direct determination of the latent heat of evaporation of water at 0°C . He used an ice calorimeter, effecting the evaporation by means of an air-pump and sulphuric acid. His result was 596.4 thermal units. Regnault's value, calculated from the results of experiments at a higher temperature, was 607.

Freezing Mixtures.—Cailltet and Colardeau, from a study of the refrigerant mixtures that are obtained by solid carbonic acid, conclude that the ether that is generally used in such mixtures plays a much greater part in lowering the temperature than has generally been supposed.

Recalescence.—This phenomenon in iron was discovered several years ago by Prof. W. F. Barrett in England. When a piece of iron is heated to redness and allowed to cool slowly it often suddenly glows with increased brightness from no apparent cause. Prof. George Forbes, in 1874, suggested that the thermal conductivity of iron may suddenly increase at some particular temperature, making it easier for the still heated inside of the bar to give up its heat to the partially cooled outside, but H. F. Newell has shown during the past year that the reglow takes place in very thin strips where there can be no great difference in temperature throughout the mass. He regards the phenomenon as due to chemical action. Herbert Tomlinson explains it in the light of other experiments of his, which show that at about 550° and $1,000^{\circ}\text{C}$. there is a physical change in iron. (See also *Magnetization of Metals*.)

Expansion.—J. T. Bottomley (London Physical Society, June 22, 1889) has measured the expansion of wires under different weights, and finds that loaded wires expand most.

Non-Luminous Flames.—Prof. Rosenthal, of Erlangen (Berlin Physical Society, April 5, 1889), has succeeded in rendering a gas flame non-luminous by inclosing it in a cylindrical chimney, partly closed above by a platinum crucible. Prof. Rosenthal thinks that the air current was thus made slower, and that the gas, burning throughout the whole mass, was at a lower temperature.

Solar Constant.—Messrs. Crova and Houdaille (Paris Academy, Jan. 7, 1889) have measured this constant on the summit of Mont Ventoux (6,244 feet), and obtained nearly three calories, agreeing with Langley's observations on Mount Whitney, Cal. They found that the polarization of the blue sky increased with the solar constant.

Spheroidal State.—K. S. Krislensen finds by calculation that the conductivity of the layer of vapor between the dish and the drop in the spheroidal state plays an important part in the phenomenon, the heat transferred to the drop by conduction being greater in amount than that by direct radiation.

Thermodynamics.—C. V. Burton ("Philosophical Magazine," September, 1889) concludes from his experiments that "we can not as yet assume with certainty the truth of Carnot's principle when chemical separation occurs between two finite portions of the working substance." Carnot's principle has also been found incompatible with the received theories of diamagnetism (*q. v.*).

Liquid and Gaseous States.—P. Heen ("Bulletin of the Belgian Royal Academy," March, 1888) suggests that liquids may be composed of

"liquidogenic molecules" that are groups or vortices whose elements are "gasogenic" molecules. At the transition from one state to the other the "gasogenic" molecules cease to move in closed curves, and describe right lines. These views are confirmed by the author's researches on variation of the specific heat of fluids near the critical point. The experiments of L. Cailltet and E. Colardeau (Paris Academy, June 24, 1889) tend to show that the critical temperature of a liquified gas is not that at which the fluid is totally evaporated abruptly within the space containing it, nor that at which the fluid and its saturated vapor are at the same density, but that at which the fluid and gaseous atmosphere above it become capable of being mutually dissolved in any proportion.

Light.—Numerous recent experiments on the connection between light and electricity have given an impulse to the electro-magnetic theory of light. The most striking of these experiments are those of Prof. H. Hertz, in Germany, on the propagation of electro-magnetic waves. By an ingenious device he produced an alternating current whose frequency was more than 100,000,000 per second, and whose wave length (since an electro-magnetic disturbance travels with the velocity of light) should be about two metres. This induced, in a second circuit of exactly equal period, currents which could be detected by sparks leaping across an air space. By moving this second circuit backward and forward before a wall he could easily detect positions at which interference took place between the direct waves from the primary generator and those that were reflected from the wall. At these points the sparking of the induced circuit almost ceased, while half-way between them it reached a maximum. This is evidently analogous to the increase and diminution of sound that occurs from interference of sound waves where a vibrating tuning-fork approaches a wall. Hertz has since extended these experiments, and they have been repeated and modified by many observers in all parts of the world. The electro-magnetic radiation has been concentrated by lenses and mirrors, polarized, made to form interference bands—in fact, treated in every way like luminous radiation, insulating substances in all cases acting as transparent media, and conductors as opaque, as Maxwell's theory demands.

Thus it has been proved that electro-magnetic induction is propagated in waves, and not by so-called "direct action at a distance." These waves, then, seem to be true light waves of great wave length, and there is stronger reason than ever to believe that light is an electro-magnetic phenomenon. (See also *Hysteresis*, under "Magnetism.") A difficulty in the ordinary elastic theory of light, however, has been removed by Sir William Thomson ("Philosophical Magazine," November, 1888), by the elaboration of what has been named a "theory of a quasi-labile ether." A wave in an elastic medium should involve a compression, but no such compression has been observed in the case of light. This has been explained by assuming the velocity of that part of the wave to be infinite, or, in other words, assuming the ether to be incompressible. The non-appearance of the wave of compression can also be explained by supposing its velocity zero,

but it has been generally supposed that this involves instability in the ether. But Sir William, in the article alluded to, proves mathematically that this is not so if we regard the ether either as filling all space or as having fixed boundaries. Prof. J. Willard Gibbs, of Yale ("American Journal," February, 1889), admits that this theory is a formidable rival to the electric, but he still prefers the latter. Sir William also, despite his championship of the elastic theory, has publicly announced his conversion to the electric—brought about by the experiments of Hertz. Next in interest are the experiments of Hertz, William Hallwachs, E. Wiedemann, and others on the influence of light on the electric discharge. Under the influence of light rich in ultra-violet rays, the potential of a highly charged disk diminishes, and a current is even set up with other bodies in the vicinity. Borgeman showed the passage of a current directly between two flames. Hallwachs has shown experimentally that a negative charge diminishes more rapidly than a positive one, and A. Stoletow that a current is produced without a battery between gauze and a solid disk of more negative metal. Prof. Righi constructs "photo-electric cells" of a disk and a net of different metals, placed opposite one another, and connected with an electrometer. When one is illuminated a deflection is obtained. J. Borgeman interrupted the beam of light by a rotating perforated disk. No sound was heard in a telephone connected with the metallic conductor on which the intermittent beam fell, showing that the action of the light was not instantaneous, and therefore, as he claims, that the effect is secondary. The same experimenter (Paris Academy, April, 1889) has shown that the loss of negative electricity in the conductor increases with the time, and that it sometimes continues, still varying periodically, after the close of the illumination.

Light with Minimum Heat.—Prof. Brackett, of Princeton, in a lecture before the New York Electric Club, in January, 1889, discusses the possibility of producing luminous radiation unaccompanied by non-luminous rays. In the present method of lighting by incandescent solids, either suspended in flames or otherwise, the visible rays must always be attended by invisible heat rays, thus wasting for our purposes many times the available energy. The experiments of Hertz, already mentioned, lead us to hope that by attacking the problem from the electro-magnetic side the desired object may be obtained. The phenomena of phosphorescence and fluorescence show that light rays unaccompanied by dark ones are quite possible. If such radiation be obtained, Prof. Brackett thinks it possible to transmit it by wires from one place to another. Others think this impossible on account of the enormously increased resistance due to the rapid oscillations of the luminous electric wave.

Spectroscopy.—Prof. Grünwald, of Prague, thinks he has established the principle that those wave lengths of light, in the spectrum of a substance A that belong to the element a are to those due to that element in the spectrum of a substance B as the atomic volume of a in A is to that of a in B (B being a compound of A with some other substance). This conclusion, which leads to important results—for example, the com-

pound nature of hydrogen—is not accepted by physicists generally. C. Fizez, in a communication to the Belgian Royal Academy, offers a new interpretation of the spectral rays which regards them as due, in part, to interference.

Hermann Ebert (Wiedemann's "Annalen," 1889), claims that the width of spectral lines is much greater than can be explained by Doppler's principle applied to gaseous molecules, but Lord Rayleigh ("Philosophical Magazine," April, 1889) makes a fresh mathematical examination of the subject and concludes that this is not so, though there is much room for further discussion and experiment. Mr. E. F. J. Love has devised a new method of discriminating between real and accidental coincidences between lines of different spectra on the theory of probabilities. He has applied his test to some of the experiments of Prof. Grünwald, and finds that, so far as it goes, it sustains the latter's theory (see above).

Prof. Samuel P. Langley, of Pittsburg, continues his researches on the energy of various parts of the spectrum. In a paper on "Energy and Vision" ("Philosophical Magazine," January, 1889), he says that the eye can perceive lights whose intensity varies in the ratio of one to one thousand million million. The time required to perceive faint light is one half second, but the time it takes the eye to recover its sensitiveness after exposure to a bright light is relatively long, being greatest for violet rays. The visual effect for the same amount of energy varies enormously with the wave length, being one hundred thousand times as great in the green as in the crimson. Prof. Langley's researches on the infra-red spectrum show that in this region the ratio between solar and lunar heat is completely changed, this ratio being five hundred thousand in the visible spectrum and five hundred in the infra-red.

Wladimir Michelson, in a communication to the Russian Société Physico-Chimique, deduces from theoretical considerations the curves of energy of spectra that have been obtained experimentally by Prof. Langley. Among other laws, Mr. Michelson deduces the interesting one that the wave length that corresponds to the maximum energy is inversely proportional to the square root of the absolute temperature of the source.

Edward Becquerel (Paris Academy, February, 1884) has deduced the law that birefringent crystals have absorption spectra of different intensities in different directions, which in general coincide with those of the optic axes, but if two isomorphous substances having different optical properties are crystallized together, while the direction of the optic axes takes up a new position, the original direction of maximum absorption bands of each substance is retained, so that the absorption spectrum of each of the constituents can be observed. A powerful instrument for the analysis of crystalline substances is thus obtained.

The selective absorption of metals for ultra-violet light has been observed at Harvard College by Prof. John Trowbridge and W. C. Sabine, who find that the color of the metal influences in no way its selective absorption for these rays. A new method in spectrum analysis has been devised by the same experimenters, who have used a steam jet in connection with the spark

of a Leyden battery for the production of gaseous and metallic spectra. The jet impinges directly on the electrodes, and the resulting light resembles that of the electric arc. The steam is decomposed, giving the lines of hydrogen and oxygen, and those of the metallic spectra are much more distinct. Franz Stenger advances the theory that the absorption of light by substances depends primarily on the size of its physical molecules, and thinks that these are more complex in concentrated than in dilute solutions.

Knut Ångström, of Stockholm (Wiedemann's "Annalen," March, 1889), in spectroscopic experiments on the *quasi*-absorption of light by small solid particles, finds that so long as the particles are of the same order of magnitude as the wave lengths of light, the change of transparency with increasing wave length is great, but if the particles are small in comparison with wave length, the medium has the properties of a homogeneous one that possesses real absorption. Prof. Henry A. Rowland, of Johns Hopkins University, has issued a new edition of his photographic map of the normal solar spectrum, of which the first appeared in 1886. These photographs were produced by concave gratings, 6 inches in diameter and of $21\frac{1}{2}$ foot radius, ruled with from 10,000 to 20,000 lines to the inch by a new dividing-engine, giving a definition far superior to any other that has yet been obtained. Prof. Rowland has devoted years to the study of dry plates, and has revised the list of standard wave lengths, carrying it into the ultra-violet.

Wave Length of Light.—Louis Bell, of Johns Hopkins University ("American Journal of Science" for April and May, 1888), reports the conclusion of his experiments on this subject which were begun several years ago. The mean value of the wave length for the line D he finds to be 5,896.18 in air at 760 millimetres pressure and 20° C. temperature, or in vacuo 5,897.90, which he considers not likely to err by so much as one part in 200,000. C. C. Hutchins ("American Journal of Science," June, 1889) has determined the metallic spectra with greater precision than has been done before. Thalén's determinations (the best hitherto) are subject to errors of one in 3,000 or 4,000, while Rowland's recent determinations of solar lines are correct to one in 500,000. Mr. Hutchins used a 5×8 centimetre grating and an 8-inch spark, assisted by steam as in Trowbridge and Sabine's method (see above). His determinations make it probable that zinc exists in the sun, and almost certain that copper is there. Prof. Albert A. Michelson and Edward W. Morley ("American Journal of Science," September, 1889), discuss the establishment of a material standard whose length in light waves is known, and conclude that with a slight improvement in methods this can be done with an error of one part in a million, and perhaps within one in ten million. Dr. Hermann Ebert, of Erlangen, using eight different colored light sources, varying in intensity between 1 and 250, has established the constancy of the wave length to nearly a millionth, within these limits.

Polarization.—Georges Meslin (Paris Academy Jan. 16, 1888), finds that when polarized light is transmitted through metallic films the rectilinear polarization becomes elliptical as in metallic reflection. Cornu (Paris Academy, May,

1889) has discovered by photographic registration of ultra-violet radiation that in that part of the spectrum the laws of elliptic polarization in vitreous and metallic surfaces approach each other. That is, if more and more refrangible rays be used, the coefficient of ellipticity in vitreous substances increases. J. L. Soret (Paris Academy, Nov. 26, 1889) finds that marine and lacustrine surfaces cause important perturbations in atmospheric polarization. Under certain conditions, he observed the phenomenon of two neutral points at the altitude of the sun, one on its right and one on its left. The polarization was in a vertical plane between these points and in the opposite direction beyond them.

Rotatory Polarization.—In a discussion on this subject in the London Physical Society, May 25, 1889, Mr. A. W. Ward gave as his opinion that in magnetic rotation the periods of the light waves are altered, their velocity remaining the same. The effect in quartz he supposed due to the light itself, and not to the crystal, for liquids show the same. In opposition to this, Prof. S. P. Thompson mentioned the fact that fused quartz has not rotatory power. Prof. Thompson considers liquid rotation as due to some sort of "skew symmetry" of the molecules, the average effect of which is observed. Prof. Kundt (Berlin Physical Society, April 26, 1889), concludes, from experiments on glass made doubly refractive by pressure, that electro-magnetic rotation is common to all substances, but in doubly refractive crystals is a periodic function of the difference of phase of the two rays. A. W. Ward (London Royal Society, May 9, 1889), also arrives at the latter conclusion. Chauvin (Paris Academy, June, 1889), obtains similar results in the special case of Iceland spar, finding that in the direction of the axis there is simple rotation, and in other directions rotation accompanied by elliptical polarization. The rotation changes sense periodically and in certain directions disappears altogether, the elliptic polarization being alternately a maximum and zero in these directions.

Lodge's Leyden jar experiments, described below, under "Electricity," show that the rotatory effect of an electric current is practically instantaneous, at least $\frac{7}{10000}$ of a second, whereas Villari, from experiments on a revolving glass drum, supposed it to take from $\frac{1}{100}$ to $\frac{1}{400}$ second. The results of Villari's experiments may have been due to strains in the revolving glass, as is concluded by A. W. Ward (London Royal Society, May 9, 1889) who repeated those experiments.

Lodge attempts to explain magnetic rotation by hysteresis (*q. v.* under "Magnetism"), but A. Potier (Paris Academy, April, 1889) explains it by assuming that at each point of the medium ponderable matter tends to be carried along with a speed proportional to that of the ether in a light wave. Ponderable material molecules in the field become magnets, and being thus caused to oscillate induce electric force in the medium.

Reflection.—Sir John Conroy finds that the amount of light reflected by polished glass varies with the method of polishing. After polishing, the surface of flint glass alters somewhat readily; that of crown glass slowly, the amount of reflected light decreasing and that of transmitted light increasing. A film of lower refract-

ive index appears to be formed. Dr. Rubens (Berlin Physical Society, March 8, 1889) has investigated the selective reflection of metals. He finds that the maximum reflexive power for silver is in the red, and for gold in the yellow. Copper reflects the blue and green rays less than gold, but increases rapidly toward the red and then more slowly into the infra-red spectrum. The reflexive power of iron and nickel rises rapidly at first from the blue toward the red, and then more slowly. In the infra-red it is not so high as copper or silver. The dispersions and indices of refraction deduced from these observations are similar to those of Kundt, now to be described.

Refraction.—In a communication to the Prussian Academy of Sciences, in February, 1888, Prof. Kundt describes his successful construction of minute prisms of seven metals, and his direct measurement of their refractive indices. The prisms were deposited electrolytically on platinumized glass after several thousand trials. Kundt's results for red light were:

Silver	·27	Iron	1·81
Gold	·38	Nickel	2·17
Copper	·45	Bismuth	2·61
Platinum.....	1·76		

The velocity of light in these metals is inversely proportional to those numbers, and seems to be proportional to their conductivity for heat and electricity. Dr. John Kerr, of Glasgow, has continued his researches on the birefringent action of strained glass, finally specifying the wave surface in such glass, and establishing, among other conclusions, that the velocity of light along the line of strain, and at right angles to it, is diminished by compression and increased by tension.

Photometry.—The committee of the British Association on a standard of light, after testing six classes of standards for four years, recommended, in 1888, the pentane lamp (see also *Definitions* under "Electricity"). J. Joly has devised a photometer, which consists of two parallelepipeds of paraffin in contact, placed between the lamps to be measured so that the line joining the lights is perpendicular to the plane of junction. The instrument is moved until the line of division is no longer visible, when the relative intensity is calculated from the law of inverse squares. Drs. Lummer and Brodhun (Berlin Physical Society, Dec. 28, 1888) have invented a photometer consisting of two right-angled prisms with their hypotenuses in juxtaposition, a drop of Canada balsam being placed between. Then through the drop the light can pass in a straight line, while elsewhere total reflection cuts off all but side light. The lights to be compared are then placed, one behind and one at the side of the compound prism, and observation is made as with Bunsen's grease-spot photometer. As the drop of balsam loses its sharp edges, the inventors produce the same result by grinding to a slightly spherical form all of one surface but a spot in the middle. On pressing the surfaces together, light passes directly only through the central spot. The sensitiveness of this instrument is about 1 per cent. Capt. William de W. Abney and Gen. Festing, of the British army, have been able to measure the relative amounts of light reflected from colored and white or black

surfaces, by means of an ingenious color photometer of their invention (Royal Society of London, June, 1888). In a simpler apparatus (Physical Society, Nov. 24, 1888), two separate beams of light throw shadows of a rod, one on a white and the other on a colored patch. The amount of light falling on the latter is varied by a rotating disk with angular openings that can be altered while the disk is in motion. When the luminosity of the patches appears the same, a white patch is substituted for the colored one, and the comparison made again. The ratio of the size of the angular openings in the two cases gives the relative luminosity.

Incanescence.—H. F. Weber's experiments cast doubt on the supposed fact that the dull red rays are the earliest to appear when a body is heated to incandescence. He found that carbon, platinum, gold, and iron give a "gray glow" at comparatively low temperatures.

Interference.—Lord Rayleigh ("Philosophical Magazine," August, 1889) calls attention to the phenomena of achromatic interference bands, which, though known to Sir Isaac Newton and treated of by Fox Talbot, have been lost sight of in recent times. The mathematical theory of bands shows that they will not be colored if the distance between the sources of light producing them vary with the wave length. This Lord Rayleigh brings about by shutting off all the spectra of a diffraction grating but one, which is reflected at a grazing incidence from a mirror whose plane passes through the central white spectrum of the grating. The distance of each ray of the admitted spectrum from this central image being proportional to the wave length, a succession of black bands is thus produced. In one case 1,200 lines to the inch were observed, a photographic image of which could be used as a diffraction grating. With a lens instead of a grating imperfectly achromatic bands were obtained.

Disintegration by Ultra-violet Rays.—Philip K. Lenard and Max Wolf (Wiedemann's "Annalen," 1889) find that the ultra-violet rays produce dust on the surface of negatively electrified metals and also on quartz and gypsum. The dust was detected by the condensation method of Aitken, described above.

Radiant Energy of Flames.—Von Helmholtz (Berlin Physical Society, June 7, 1889) has measured the relation between the energy of flames and the amount of gas consumed. He finds that there is more luminous than non-luminous energy, and that the radiating power is not dependent on the temperature. His results are consistent with the hypothesis of Julius that the products of combustion are the only criteria of the amount of radiant energy of a flame. The author considers it more economical to use gas for driving a dynamo, which supplies an electric glow-lamp, than to burn the gas directly.

Fluorescence.—B. Walter (Wiedemann's "Annalen," February, 1889) finds that the fluorescence of a quite concentrated solution of fluorescein is zero, or infinitely small. When this solution was diluted to $\frac{1}{25}$, the fluorescence began to be measurable, and it then increased till the dilution reached $\frac{1}{3200}$, after which it remained constant for all degrees of dilution experimented with, the greatest being about $\frac{1}{8500000}$. The

fluorescence, both of this substance and eosin, was found to increase with the temperature.

Optical Teaching.—Prof. Silvanus P. Thompson disapproves of the ordinary division of optics into geometrical and physical, and thinks that the theory of lenses, etc., should be treated from the first by using the idea of waves. He has begun (*"Philosophical Magazine,"* October, 1889) a series of papers in illustration of his method.

Electricity. Its Nature.—Prof. Oliver J. Lodge, developing the views of Michael Faraday and James Clerk Maxwell, has presented what he considers the "Modern Views of Electricity" in a series of articles in *"Nature,"* beginning in October, 1887, and since published in book form (London, 1889). According to his ideas, electricity is probably identical with the luminiferous ether. According to the views of his school, the phenomena of statical attraction or repulsion are due to a state of strain in the dielectric in the neighborhood of the so-called "charged bodies," and Prof. Lodge explains that the ether may be thus strained while retaining the properties of a fluid, because the strain consists only in the separation of its positive and negative components. The phenomena of conduction are similarly explained, the transfer of electric energy in the latter case taking place, according to his view, through the surrounding medium, and not through the conductor (see *Route of Electric Force* below). Magnetic phenomena are explained as the result of vortices or whirls in the ether, while waves in it are identical with waves of radiant heat and light; but these are not waves of mechanical distortion as in the ordinary theory, but disturbances such as take place in the neighborhood of a body that is rapidly charged and discharged (see above, under "Light"). Prof. Lindemann, however, in the theory of physical phenomena that has been mentioned, suggests that the atoms of those bodies that we call electrified are merely vibrating in very much shorter periods than those that give rise to light waves. An indefinite number of such small waves would impinge at once on a molecule, and the author shows mathematically that the effect would be the same as if the body from which they proceed were "electrified." As the luminous and electrical vibrations differ in his view only in frequency, a body should be electrified by being made to approach a source of light by Doppler's principle. This may explain the electrification of the particles of a comet's tail. By the same principle, a particle that moves away from a source of electricity should appear luminous, which may throw light on the phenomena of Geissler tubes.

Sources of Electricity.—A thermo-magnetic generator was suggested in 1869, before the Royal Society of London, by Dr. Gore, who proposed to produce a changing magnetic field by heating and cooling the iron core of a coil. In August, 1887, Thomas A. Edison described to the American Association a "pyromagnetic generator," which was the first of such generators to be actually constructed. He used eight horse-shoe magnets in a circle, their poles pointing inward. Between the poles of each was a roll of thin laminated iron covered with asbestos and wrapped with wire. The apparatus is placed over a fur-

nace from whose heat it is partially protected by a half-disk of fire clay. This can be made to revolve, alternately heating and cooling each bundle of iron, with accompanying variations in the magnetic field, and the consequent induction of a current in the surrounding coils of wire. In January, 1888, M. Menges of the Hague exhibited several new forms of this kind of generator, the chief of which consisted of a Gramme ring, within which was a stationary electro-magnet. In the space between the latter and the ring is a zigzag ribbon of iron, which is heated at such points as to destroy the symmetry of the lines of force. In consequence the ring rotates, generating currents as in an ordinary dynamo. Ferdinand Braun, in the *Berichte der Berliner Akademie* (1888) describes experiments that show that when a nickel spiral is suddenly pulled out, an electric current is generated, and when it is compressed there is a current in the opposite direction. The effect ceases when the wire is annealed. In Wiedemann's *"Annalen"* (May-September, 1889) Braun treats exhaustively of the currents thus produced, which he proposes to call *deformation-ströme* (deformation currents). The direction of the dilatation current (that produced when the spiral is pulled out) in a right-handed nickel spiral is opposed to the direction of drawing. Metals which act in this way Braun calls negative. If the metal be magnetized longitudinally, so that the drawn end is a south pole, the current is increased. The deformation current is comparable in amount with thermocurrents, and is slight in iron and steel. Braun explains it by supposing that deformation alters the magnetism of the metal, causing a "magnetic current" through it, and that this change of magnetization induces an electric current. Dr. Carl Langer and Ludwig Mond have devised what they call a "dry gas battery," consisting of a porous diaphragm of plaster of Paris soaked with dilute sulphuric acid, both sides covered with perforated platinum leaf, over which is a film of platinum black. The diaphragm is arranged to form chambers, through which hydrogen is passed on one side and air on the other. One element, with an effective surface of 120 square inches, has an electromotive force of one volt and a resistance of half an ohm. The electromotive force is decreased by transportation of the acid from one side of the diaphragm to the other, but this effect is prevented by interchanging the gases from time to time. Dr. Wolff (Berlin Physical Society, Feb. 23, 1889) applies the name of "oxygen elements" to galvanic cells of zinc, or zinc sulphate or chloride, with copper, silver, or iron, believing his experiments to show that the source of current energy in such cells is due to the combination of oxygen with the metal. M. Hein has investigated the value of magnesium as a positive element in batteries. The electromotive force is high, reaching 2.95 volt with a magnesium-carbon couple in bichromate solution, and 2.98 when the magnesium is in dilute sulphuric acid. The disadvantages are the cost and the high resistance of magnesium salts in solution.

Change of Potential of a Voltaic Couple.—Between May and August, 1888, Dr. George Gore described, in a series of papers to the Royal Society of London, his experiments on the mini-

imum amount of various soluble substances required to alter the electromotive force of a couple. This he found varied with the chemical composition of the liquid, the kind of positive metal, to a less degree, with the kind of negative metal, the temperature, and the kind of galvanometer employed.

Contact Electromotive Force.—C. V. Burton (London Physical Society, April 28, 1888) deduces theoretically the laws that for substances chemically inactive "the true contact E. M. F. is equal to their Peltier effect expressed in absolute measure," and for substances without Peltier effect "the E. M. F. is equal to the energy of combination of one electro-chemical equivalent." M. Peltchikoff (Paris Academy, July 15, 1889) finds that the contact electromotive force of a crystal has different values, according as it is taken on the top, a face, or an angle; also, that if one of two bodies is not isotropic (for instance, if it has some sort of symmetry with respect to an axis), its electromotive force of contact with the other body has the same sort of symmetry. Prof. Herroun (London Physical Society, Jan. 26, 1889) concludes that the primary factor in the electromotive force of a cell is the relative heat of formation of the anhydrous salts of the two metals, but this may be, and usually is, supplemented by the energy due to their hydration or solution. His experiments have enabled him to correct the received values of the heat of formation of salts.

Thermo-electricity.—Herbert Tomlinson has shown that when part of an iron circuit is twisted, and the junction of the twisted and untwisted parts is heated, a current passes from the strained to the unstrained metal, which suddenly increases in intensity when a red heat is reached. Similarly, though hot iron is always negative to cold iron, the difference of potential increases suddenly at a red heat. This confirms the conclusion that at a high temperature iron undergoes a sudden alteration in molecular structure (see also *Recalescence*, under "Heat"). Albert Campbell (Royal Society of Edinburgh, Jan. 16, 1888) shows that tin at its melting-point undergoes a change in its thermo-electric properties similar to that which takes place in iron at a high temperature while still solid. James Monckman (London Royal Society, May 31, 1889) finds that the thermo-electric properties of carbon are opposite below and above 250° C., as shown in the following table:

Below 250°.	Above 250°.
1. Current from cold to hot.	From hot to cold.
2. Thermo-electric line rises.	Falls.
3. Rate of decrease of resistance per ohm diminishes.	Increases.
4. Rate of increase of coefficient of expansion increases.	Decreases.
5. Rate of increase of specific heat fairly regular.	Falls to one half.

Electrolysis.—W. Haldane Gee and H. Holden, in electrolyzing sulphuric acid, find that if the current increase, the resistance also suddenly increases. This seems to be due to a film at the anode, formed probably of concentrated acid. W. Peddie (Royal Society of Edinburgh), from experiments on the time-rate of increase of electrolytic polarization, deduces 10⁻⁹ centimetre as the distance between the platinum and the layer

of gas that is condensed on it. C. H. Draper, in his experiments on the polarization of platinum plates, concludes that the electromotive force of polarization depends on the current when this is below a certain value, and increases with the current more and more slowly, till finally an increased current has no further effect.

Lightning and Lightning-Rods.—Observations on lightning, especially by photography, have been frequent of late. In lightning photographs, what appear to be images of dark flashes are often noticed on the plate. The cause remains in doubt. Prof. Stokes suggests that oxides of nitrogen in the track of a flash may cause the phenomenon by absorption of light. G. M. Whipple (London Physical Society, April 13, 1889) supposes it not to be a real phenomenon, but produced, in taking prints from the negatives, by successive reflection from the reduced silver and the glass. If this is so, a "dark flash" should always be parallel to a bright one. This is not always so, but this may be due to irregularity in the upper surface of the negative. Others think the effect due to some kind of reversion. For instance, A. W. Clayden (London Physical Society, June 22, 1889) supposes it due to exposure of the plate to diffused light from a cloud just after the flash. His experiments on the photography of an electric spark show that this is possible. Photography seems to indicate that several flashes often follow in the same path. This is also shown by the appearance of a mirror struck in Prague on June 9, 1889. The heated air in the track of one flash may serve as a conductor for the next. But G. M. Whipple supposes that the photographic effect is due to taking the pictures through glass windows, and he illustrates his point by so photographing a chalk line on a blackboard. Much evidence has also been collected on the subject of globular lightning, and it seems to be generally admitted that it exists, contrary to the opinion of early authorities, who thought it an optical illusion. Prof. Oliver J. Lodge, in a course of lectures before the Society of Arts, in 1888, disagreed with some received ideas about lightning. He asserted that a lightning discharge will often fail to follow the best conductor, and that there is a tendency to side-flash, the discharge often leaving the rod and following a very erratic path. According to his views, there are two principal causes of obstruction besides those that depend on the actual resistance—first, the direct effect of self-induction (called "impedance" by Oliver Heaviside); and, second, the fact that a static discharge is rapidly alternating (see *Leyden Jars*). If the alternations are rapid enough, the current may be confined to the surface of the rod, producing a tendency to side-flash. For lightning-rods, he considers iron better than copper, its self-induction being less, although it is magnetic, perhaps because the current passes only on the outside, and hence magnetizes nothing. He thinks rods should be made of great capacity as well as high conductivity, and therefore recommends that the conductor be expanded over as much space as possible. This matter was afterward the subject of an interesting discussion in the British Association, where William H. Preece differed widely from Prof. Lodge's conclusions, saying that

lightning does not "go careering wildly about," that there is no proof that it is oscillatory, and that his own experiments on the self-induction of iron and copper showed that it was greater in the former. The speakers also differed as to the size of the "protected area," but all agreed that properly constructed rods are desirable, and that their number should be greatly multiplied.

Leyden Jars.—The experiments of Lodge alluded to above have directed general attention to Leyden jars. He proves that the discharge of such condensers is oscillatory by employing it to rotate the plane of polarization in glass or carbon disulphide. If the beam of light which passes during the discharge be examined in a rotating mirror, it appears like a beaded band. In a lecture before the Royal Institution (March 8, 1889), Prof. Lodge succeeded in reducing the period of the oscillatory discharge by adding to the capacity of the jar and increasing the self-induction of the circuit till a sound was produced. A. Righi, in Italy, experimenting with a powerful battery of 108 jars, obtained sparks 5 metres long over glass coated with zinc filings, and 1 metre long over water. A platinum wire $3\frac{1}{2}$ metres long and $\frac{1}{10}$ millimetre in diameter was instantly fused by the discharge, forming a corona of incandescent globules, and a similar wire $1\frac{1}{2}$ metre long disappeared entirely, showing a brilliant white spark exactly the shape of the wire. In this case the wire appears to be first vaporized, and then the discharge passes by the vapor.

Conductivity.—M. Foeppel constructed an induction coil whose secondary circuit is glass tubing 21.2 millimetres in internal diameter. This was connected with a galvanometer, which showed no deflection when the tube was exhausted, even with a current of 22 ampères in the primary. He concludes that the resistance of such a vacuum as he obtained must be at least 3×10^6 times that of pure copper. Afterward some doubts were cast on this result by a second experiment, in which an exhausted tube was surrounded by a solenoid, through which a Leyden jar was discharged. Luminous phenomena took place, but M. Foeppel still concludes that they were not due to conduction. Carl Barus ("American Journal of Science," May, 1889) shows that a solid electrolyte like glass is a better conductor of electricity when under strain than when free. The influence of temperature is not marked. In Barus's experiments the temperature of the glass varied between 100° and 360° C. W. H. Schultze describes in Wiedemann's "Annalen" experiments that show that the conductivity of glass rises with the temperature. That of mica parallel to the plane of cleavage also rises at first, but reaches a maximum, and then diminishes till at high temperatures it is a better insulator than glass.

Electricity in Gases.—Max Wolf (Wiedemann's "Annalen," 1889) finds that—

1. The electric force which produces a disruptive discharge in a gas increases proportionally to the pressure between 1 and 9 atmospheres.

2. The increase for the simpler gases is inversely proportional to the mean path of the molecule.

3. The increase is smaller in carbonic acid.

4. One or more discharges are necessary for the gas to attain its permanent state of resistance.

Dr. Natterer (Vienna Academy, June 21, 1889) finds that the sparking distance in gases, the luminosity, and the extension of the glow at the negative electrode under diminished pressure, are all characteristic for each gas and are related to the number of atoms in a molecule and to the molecular weight. J. Elster and H. Geitel (Vienna Academy, Oct. 23, 1888) have discovered that electricity is excited in rarefied gases by wires rendered incandescent by the passage of a galvanic current.

Electric Convection.—Prof. Henry A. Rowland and Cary T. Hutchinson, of Johns Hopkins University, have repeated the former's classic Berlin experiment of 1876 on the magnetic effect of static electricity in motion. Edward L. Nichols and William S. Franklin, of Cornell University, find that the longitudinal motion of a conductor in which a current is flowing has no effect on the galvanometer needle. If the current had been formed by static electricity, moving more than 1,000,000,000 metres a second, they could have detected such an effect.

Route of Electric Force.—Prof. H. Hertz (Wiedemann's "Annalen," July, 1889) has experimented on the route of electric force in or near a conductor, and thinks that it is conveyed not by the conductor, but by the surrounding dielectric, as held by Heaviside and others. Screens of conducting material properly arranged around the wire cut off rapidly alternating currents, though there is no interruption in the wire itself. Prof. J. J. Thomson (London Royal Society, Jan. 17, 1889) finds that the screening influence of conducting disks depends on their conductivity, their thickness, and the frequency of alternation. Differing slightly from Hertz, he holds that the rate of propagation of an electro-dynamic wave through a metallic conductor and the surrounding dielectric is the same, but not when the former is a dilute electrolyte or a rare gas. In the latter case there are interferences and standing vibrations, causing the well-known striæ of the Geissler tube.

Volatilization of Electrodes.—Gaston Seguy ("Revue Internationale de l'Électricité") finds that when electrodes of various shapes are volatilized in vacuum tubes the metal is deposited on the glass in a form corresponding to that of the electrode in a curious way, the angles of one figure being opposite the sides of the other and *vice versa*. No explanation of the phenomenon has been proposed.

Induction.—W. E. Sumpner (London Physical Society, April 14, 1888) points out that the term "coefficient of self-induction of a circuit" has been applied to three distinct things—first, the back E. M. F., due to change of current, divided by the time rate of increase of the current; second, the total induction divided by the current; and, third, the kinetic energy of the circuit divided by half the square of the current. These three quantities are the same if the medium be air, but not, for instance, in iron. Mr. Sumpner also showed that the time taken to discharge a condenser through a given resistance is decreased by adding self-induction to the circuit, provided the coefficient of self-induction is

less than $\frac{1}{4} KR^2$ (where K is the capacity of the condenser and R the resistance of the circuit). He thinks this may account for some of Dr. Lodge's results in his experiments on iron and copper, as lightning-conductors (see *Lightning*).

C. V. Zenger (Paris Academy, Sept. 2, 1889) finds that a copper sphere turning by torsion near an electro magnet exhibits peculiar spiraloid elliptic movements, by which he attempts to explain some planetary motions.

Sir William Thomson, in a mathematical paper before the British Association, in 1888, arrives at the conclusion, among others, that when currents are induced in any way in a solid composed of parts of different conductivity, there must in general be changing electrification over each interface between those parts (see below). For other interesting experiments in electromagnetic induction see under "Light."

Action between Electrodes in Fluids.—M. Gouy communicated, on Feb. 20, 1888, to the Paris Academy the results of his experiments to ascertain whether any attraction is exerted by the free electricity that theory requires to be present on the surface that separates two conductors of different resistance. He found that the forces that have been referred to exist and are more considerable than could be foreseen. Sirks, of Deventer, Holland, has discovered that when an electric current passes through a solution of copper sulphate between two electrodes whose backs are varnished, both are pulled against the positive stream, the force amounting to nearly one gramme per ampère and per square metre.

Heat Effects.—Prof. Eugenio Semmola, of Italy, has verified for the first time the fact that heat is generated when metallic points discharge their electricity. It is suggested that this may be utilized in studying atmospheric electricity. The laws that govern the fusion of fine wires by the electric current have been investigated in England by William H. Preece, Profs. Ayrton and Perry, and Mr. Cockburn. For wires whose diameter is less than .01 inch, the fusing current varies as the diameter, but for larger wires it is

given by the equation $C = ad^{\frac{3}{2}}$ (where d is the diameter and a is a constant that varies with the metal that is used). This has been determined for all metals. When a tin wire approaches fusion its surface is covered with a skin of oxide, which allows a greater current to flow before the wire fuses; but a coat of shellac prevents the formation of the skin (see also *Leyden Jars*, above.) M. Cailletet has shown that a current that would fuse a wire under ordinary pressure will scarcely make it red hot when the pressure is great. It had already been shown by James T. Bottomley that, conversely, a wire that is dull at ordinary pressure becomes incandescent in a vacuum. Van Aubel, a Swiss physicist, finds that the resistance of bismuth often increases with reduction of temperature, which is the case with no other metal.

Undulation accompanying the Electric Spark.—Dr. Ernest H. Cook reported to the London Physical Society, on June 23, that when sparks pass between two points placed above a plate on which is some powdered substance, the particles arrange themselves in circles nearly concentric

with the projection of the line joining the points. The distance of the lines varies with the material of the powders, the extremes being $\frac{1}{16}$ inch with chalk and $\frac{1}{8}$ inch with silica. The author offered no explanation of this phenomenon.

Electric Apparatus.—Prof. Nichols, of Cornell University, has constructed a standard of resistance on which the influence of temperature below 100° C. is entirely imperceptible. It is composed of a rod of carbon on which a strip of copper 1 millimetre wide is deposited electrically in such proportion that the increase of resistance of the metal is balanced by the decrease of that of the carbon.

A novel form of coulomb-meter, devised by Prof. George Forbes, consists of a spiral of iron wire, above which a set of mica vanes is supported on a delicate pivot. The current heats the wires and the warm air rises, turning the vanes, whose revolutions are registered by a train of wheels moving an index.

Dr. Gore has devised what he calls "the voltaic balance," consisting of cells of distilled water, zinc, and platinum, connected oppositely, in series, with a galvanometer. When the opposing electromotive forces are equal there is no movement of the galvanometer needle, but a very slight chemical change in the liquid causes a deflection. This instrument appears a valuable aid to the determination of the strength of weak solutions, the presence of soluble impurities, etc.

An electric manometer has been devised by J. and P. Currie ("Journal de Physique," April, 1889) on the principle that the volume and electrification of quartz are mutually dependent. Plates of quartz under pressure are connected with a quadrant electrometer, and are found to be sensitive to an alteration of pressure amounting to 5 grammes. C. V. Boys (London Physical Society, April 13, 1889) finds that quartz rods as insulators are much superior to the best glass. A clean glass rod will discharge the leaves of an electroscope in a few seconds, while quartz retains the same for five hours, even when the rod is moistened with water. An electrical testing bureau was opened at Johns Hopkins University on Sept. 1, 1888, for the verification of the constants of instruments that change with time, and tests of batteries, dynamos, motors, etc. This is the first of the kind to be established in the United States, though there are several in France, Germany, Austria, and England.

Applications of Electricity.—The enormous number of these that have passed into the commercial stage can not even be touched upon here. Among those that are yet experimental is a new system of telephonic communication between trains in motion and neighboring stations, devised by P. Germain, and described to the Paris Academy on April 23. A series of measurements of the resistance, insulation, and diffusive electric power of ordinary rails has satisfied the inventor that telephonic communication can be carried on through them.

Definitions and Nomenclature.—The International Congress of Electricians which met at Paris in 1889 adopted the following electrical definitions:

The unit of work is the Joule, equal to the energy of the heat produced in one second by an ampère in an ohm.

The unit of power is the Watt, equal to one Joule per second.

The unit coefficient of induction is the quadrant, equal to 10^9 centimetres.

The frequency of current alternation is the number of periods per second.

The effective intensity of an alternating current is the square root of the mean square of the intensity.

The effective E. M. F. is the square root of the mean square of the various E. M. F.'s.

The apparent resistance of such a current is the factor by which the effective intensity must be multiplied to obtain the effective E. M. F.

The decimal candle is the twentieth part of the absolute standard of light adopted in 1884. (This candle very nearly equals the English standard candle). The anomaly has been pointed out that the word electricity is commonly used in three different senses to mean electric energy, electric current, and electric quantity. The word *amberism* has been suggested as a substitute for "frictional electricity."

Magnetism. *Magnetism of Metals.*—The temperature at which nickel suddenly begins to lose its magnetic properties, according to Herbert Tomlinson (London Physical Society, Feb 25, 1888), depends on the magnetizing force that is used, which accounts for the discrepancies of previous observations. Prof. James A. Ewing of Dundee, Scotland, and G. C. Cowan (Royal Society of London, May 17, 1888) find that longitudinal pull diminishes magnetism in nickel to a surprising degree under both large and small magnetic forces, and that the effects of stress are much less complex than in iron. G. Berson (Paris Academy, Jan. 14, 1889) finds that shock influences the permanent magnetism of nickel in the same way that it does that of iron. In a field of feeble intensity a bar of either metal may be permanently magnetized by shocks. The author suggests that vibrations of apparatus that are furnished with permanent magnets should be avoided. Two pupils of Ewing and Cowan, W. and D. Low, in a communication to the Royal Society, on June 21, 1888, give among other results that forces of from 3,000 to 13,000 C. G. S. units produce a practically constant intensity of magnetization, which they suppose to be the saturation value. That the effect of a magnetic field on the electric resistance of bismuth is to increase it at low temperatures has been discovered by the Swiss physicist, Van Aubel. The experiments of Prof. J. A. Ewing (Royal Society, London, Nov. 22, 1888) confirm the old opinion that there is a limit to the magnetization of iron, in opposition to other results of his which seemed to show the contrary. Using the large magnet of Edinburgh University, whose poles terminate in bobbins having a cross section only $\frac{1}{1600}$ as large as that of the magnet, he finds that no considerable change takes place in the magnetic intensity of wrought iron when the magnetizing force is varied from 2,000 to 20,000 C. G. S. units. It remains sensibly constant at 1,700, which may be regarded as the saturation value. That of cast iron is 1,200, nickel from 515 to 400, varying with the amount of iron present, and that of cobalt (with 1.66 per cent. of iron) 1,300. P. Ledeboer (Paris Academy, Jan. 9, 1888) finds that the magnetic permeability of

iron begins to decrease at 650° C and disappears altogether at 770° Dr. John Hopkinson (London Royal Society, March 7, 1889) finds that all traces of magnetism disappear at 737° C. Before it reaches this temperature, however, at 727°, its permeability begins to increase, and continues to do so up to the higher point, when it suddenly drops (see *Recalescence*, under "Heat," and *Thermo-Electricity*). Paul Janet (Paris Academy, March, 1889) has studied the effect of transversal magnetization on iron magnets, using an iron tube which could be magnetized longitudinally by a helix, and transversally by a wire core. He obtained the following results:

1. Producing or destroying a longitudinal magnetization causes residual transverse magnetization to disappear.

2. The tube being transversally magnetized to its greatest extent, producing or destroying a longitudinal magnetization causes a supplemental transversal magnetism which remains as long as the transversal magnetizing force. This disappearing, producing or destroying the longitudinal magnetization destroys the supplemental transverse magnetism.

The effect on magnetization of producing or destroying a magnetization at right angles to it seems to be the same as that of a shock.

Effect of Magnetization on Electric Resistance.—G. H. Von Wyss (Wiedemann's "Annalen," February, 1889) concludes from his experiments that the change of electric resistance in iron due to this cause is nearly proportional to that of the magnetic moment. D. Goldhammer ("Annalen," April, 1889) finds that his own experiments bear out the law propounded by Du Bois in 1887, that "If physical changes depend on the direction of magnetization they are proportional to the magnetization; if not, to the square of the magnetization." The rotation of the plane of polarization (see *Polarization*, under "Light") is an effect of the first kind; the change of electric resistance one of the second kind.

Hysteresis.—This word is applied by Prof. Ewing to the property of iron by which that metal is more susceptible to forces that tend to magnetize it more than to those that tend to demagnetize it. Prof. Oliver J. Lodge applies it to explain the Faraday and Hall effects, premising that it must exist in other substances than iron to a far less degree. The Faraday effect is the rotation of the plane of polarization of light by a magnetic field (see *Polarization*, under "Light") and is greater as the light passes through a more strongly magnetic medium. One of the circular components into which the light vibration can be resolved will agree in direction with the magnetism of the medium and strive to magnetize it more (granting that light is an electro-magnetic disturbance). The other will tend to demagnetize the medium. By the property of hysteresis one component can do its work more easily than the other, so that the polarization plane is rotated. The "Hall effect," the rotation of an electric current by a magnetic field, is also referred by Prof. Lodge to hysteresis by a similar explanation. Prof. Edwin H. Hall, from whom the effect takes its name, as he was its discoverer, has continued his measurement of it in different metals, giving his latest results for cobalt, nickel, and bismuth in the "American

Journal of Science" for October. Aimé Witz (Paris Academy, Jan. 2, 1888,) says that his experiments show the effect of a magnetic field on a magnet to be greater when it acts to diminish than when it tends to increase the magnetism. If this is correct, Prof. Lodge's explanation of the effects just mentioned must fail.

A. Fanakadaté, of Glasgow University, finds that a large part (about 80 per cent.) of the energy involved in the hysteresis is used to heat the iron. Speed seems to have little effect on hysteresis, soft iron taking in .0025 second at least 70 per cent. of the magnetization it would have when subjected to the same field for hours. Shelford Bidwell (London Royal Society, March 21, 1889) finds that when a bar of soft iron is tempered, or when it is magnetized and then demagnetized by means of a coil, it is easier to magnetize it in its previous direction than in the other. Its previous north pole becomes again a north pole when tapped, or even under the influence of a ray of light. The effect of light is at first instantaneous, and then increases slowly, which Mr. Bidwell explains by supposing the first effect to be due to the radiation itself, and the second to slow heating.

Magnetism of Gases.—Prof. Töpler, of Dresden, has determined that oxygen is the most magnetic gas, and that air and nitric oxide follow in order; while nitrogen, hydrogen, carbonic oxide, carbonic dioxide, and nitrous oxide are diamagnetic.

Intense Magnetic Fields.—Major King, of the United States army has constructed a mammoth electro-magnet from two Rodman guns, the whole weighing about 60 tons. The armature resisted a pull of 10 tons, and the magnet created an appreciable field over a large area, stopping watches at great distances. Prof. Stephan, of Vienna, shows that to produce magnetic fields of great intensity the pole pieces must be truncated cones whose generatrices pass through the center of the field and form with the axis an angle of $54^{\circ} 44'$. The magnitude of the field is then limited only by the size of the magnet. If the pole pieces are plane it is impossible to pass the maximum intensity $4\pi\mu$ (where μ is the permeability).

Diamagnetism.—P. Joubin, (Paris Academy, March 12, 1888), has discovered that there seem to be several states of equilibrium in diamagnetic bodies, which result is shown to be in accordance with theory by P. Duhem. S. Hennchser has shown that organic compounds of the fatty-acid series are all diamagnetic. For each CH_2 in the formula the molecular magnetism increases (on an average) by 163.2 (taking the molecular magnetism of water equal to 10). He thus calculates the atomic magnetisms of the elements, and finds $\text{H}=9$, $\text{O}'=129$, $\text{O}''=17$, $\text{C}=145.2$, $\text{Cl}=282$, etc. J. Parker ("Philosophical Magazine," April, 1889) shows theoretically that by moving a diamagnetic body near a magnet there will be a gain of work at a constant temperature. He concludes that one of three things must take place—either, 1, there is a creation of energy; 2, the development of magnetic force is instantaneous; or, 3, the work is transformed from heat, in which case Carnot's principle fails, and the concentration of energy is possible. P. Duhem (Paris Academy, May 20, 1889) concludes from similar

considerations that the received theory of diamagnetism is wrong, being incompatible with thermo-dynamical principles, and he adopts the view of Becquerel, that diamagnetism is not real, but apparent, those bodies whose magnetism is less than that of the surrounding medium appearing diamagnetic.

Terrestrial Magnetism.—Prof. Edward Hull (London Royal Society, May 16, 1889) explains the earth's magnetism by supposing that beneath its crust there is a "magma" rich in magnetic iron ore. On crystallizing by cooling each crystal of this magma assumed a polar arrangement. I. Wilson Swan has succeeded in causing a Gramine ring to rotate under the influence of the earth's magnetism, thus forming a motor whose permanent magnet was the earth. He exhibited his machine to the London Royal Society, May 8, 1889.

Magnetic Thermo-genesis.—Researches on this phenomenon by Prof. Giuseppe Martinotti lead to the general conclusion that heat is developed when a magnetic body is magnetized, and that the heat is increased by reversing, or even by interrupting the magnetizing current. These results accord with modern theories of thermodynamics and molecular polarization.

PHYSIOLOGY. Nervous System.—Great importance, says M. G. Hervé, attaches to M. Broca's discovery in man of the cerebral convolution known by his name, which he found to be absent in all animals below the Anthropomorpha, and which is fully developed in the human brain, while it appears in the other members of the order only in a simple or rudimentary form. This fact in itself gives support to the hypothesis that intermediate types, now lost, must have been interposed between man and the still existing forms of the Anthropomorpha. Yet more important are the results yielded by recent researches, which show that the normal human brain possesses a quadruple system of the frontal convolutions, due to the doubling of the binary frontal lobes, while in Broca's convolution we must, moreover, recognize the origin and function of speech and memory. In the microcephali, in idiots, deaf-mutes, and in all persons of inferior intelligence, this convolution is more or less atrophied, especially within the insula or center, where it unites with the other frontal convolutions near the extremity of the olfactory channel.

The researches of Dr. W. Hale White into the "Histology and Function of the Mammalian Sympathetic Ganglia," with the conclusions which he drew from them, were mentioned in the "Annual Cyclopædia" for 1887 (page 671). They have been continued; and in a later paper ("Journal of Physiology," July, 1889), the author postulates from the whole investigation that in lower mammals and young human beings the collateral ganglia (if we may judge from the superior cervical and semilunar), are functionally active, but that in monkeys there are evidences of the commencing loss of their function which has completely disappeared in the human adult; and that in man the function of the lateral ganglia is maintained well into adult life, and only begins to disappear in old age.

A paper is published in the "Journal of Physiology" by Dr. W. D. Halliburton concerning

his examination of cerebro-spinal fluid, which was obtained from meningocœles, or from cases of hydrocephalus. This fluid is distinctly different in several points from the fluids found in the serous cavities; the latter are present in health in very small quantities, and our knowledge concerning them is mostly derived from cases of disease in which they are increased in quantity. Like normal lymph, they are transudations from the blood, and may be briefly described as diluted blood plasma. The fluid in the cerebro-spinal canal is, on the other hand, in direct communication with that in the sub-arachnoid cavity, and is thus in an anatomically different situation from the other fluids; and it appears to be under different mechanical relations to the parts which it bathes, there being enough of it not only to moisten the membrane, but even to exert a considerable amount of pressure. It has special characteristics, and is not merely dilute lymph. The analyses show that it is poor in the amount of proteid material it contains, and that the amount of salts is approximately the same as in blood and lymph. The interest of the proteids lies in the presence of albumoses and peptones. The inquiry into the presence of any digestive ferment to produce these, gave in all cases a negative result. The existence of a reducing substance has been a matter of common observation. In addition to not undergoing the alcoholic fermentation, it is observed that this substance has no action on polarized light, and that it does not give the phenyl-hydrazine test for sugar. The author is convinced that this substance is pyrocatechin. In conclusion, it is said that there is no peculiarity as regards saline constituents in cerebro-spinal fluid; and that it is in the exceptional character of the proteids, and in the presence of pyrocatechin, that it stands clearly marked off from serous or lymph-like fluids.

Researches have been pursued by Prof. Preyer on reflexes of the embryo, with many classes of animals. Of all these, birds are recommended as most suitable for observation, because, with due precaution, the development of the same individual can be followed for a considerable time. Birds' eggs can be incubated in a warm chamber, and, by removing a portion of the shell and replacing it with a piece from another egg, it will be possible to follow the daily development of the chick and to experiment upon it. As early as the ninetyeth hour of incubation, spontaneous "impulsive" movements may be observed, taking place apparently without any external stimulus as a cause, and at a time when no muscles or nerves have as yet been developed. After the occurrence of these spontaneous movements, and at the earliest on the fifth day of incubation, movements are observed to result from the application of mechanical, chemical, and electrical stimuli. From the tenth to the thirteenth day more complicated and reflex actions occur on the application of stimuli, as, for instance, movements of the eyelids, beak, and limbs; and if the stimuli are strong, reflex respiratory movements. These reflexes make their appearance before any ganglia have become differentiated. The author considers himself justified in concluding from this that ganglia are not essential for the liberation of reflex actions.

Dr. J. Rose Bradford and George Henry Lewis,

student, have published the results of a research undertaken to map out the origin, course, and nature of the renal nerves, and more particularly to decide whether the vascular nerves are of two kinds, vaso-constrictor and vaso-dilator, or whether the latter nerves could not be demonstrated to exist. Their conclusions, briefly summarized, are, that all renal vaso-motor fibers leave the spinal cord in greatest abundance from the sixth dorsal to the thirteenth dorsal vertebra; while below this they are found in rapidly diminishing numbers; that they are of two kinds, vaso-constrictor and vaso-dilator, of which the former are the best developed; that the kidney-vessels receive their nerves from all the spinal nerves included in the series, but most of the renal vaso-motor fibers are found in the eleventh, twelfth, and thirteenth dorsal nerves. No evidence was obtained of the existence of any vaso-constrictor fibers for the kidney-vessels in the vagus nerve. By reflex excitation it is more common to get contraction than expansion of the kidney, but expansion is frequently obtained by the excitation of the central end of a posterior root of a nerve belonging to the renal area. On the other hand, excitation of the central end of an intercostal nerve produces contraction of the kidney; hence the expansion observed with the central end of a posterior root is apparently due to the stimulation of afferent visceral nerve-fibers. Occasionally reflex action produces a general dilatation, and then the kidney (although its vessels share in the dilatation) undergoes passive shrinking. There is no evidence to show that any decussation of the vaso-motor fibers in the splanchnic occurs.

Experiments of Dr. Piotrowski on the difference between the conducting power of nerves and their irritability have shown that irritability can be increased by the action of carbolic acid, without the conducting power being simultaneously affected; that by means of alcohol vapor irritability may be increased while the conducting power is diminished; and that nerves possess considerable transverse irritability.

Drs. J. Burdon Sanderson and F. Gotch have determined that the electrical organ in the skate corresponds in structure and function with the electrical organs of other fishes. Its electro-motive elements are arranged in series after the manner of a voltaic pile, so that the effects of excitation increase proportionally to the number of elements in series which are brought into action. The observations of Prof. Fritsch on the torpedo have confirmed the findings of Wagner and Remak, that each plate consists of two layers, one dorsal and one ventral; that the nerves are attached to the plate from the under side, and are distributed in branches over it; and that the under surface of the plate is dotted; and have added several particulars respecting details of the structure.

Circulation.—The studies of Drs. W. D. Halliburton and W. M. Friend on the "stromata" of the red corpuscles of the blood—or the colorless, less soluble part which is left after the pigment is dissolved out—have consisted largely in confirming the results of previous observers. Former researches have been directed in two lines: one dealing with the nature of the proteid, and the other with the presence of fibrin ferment

in the stromata. These are so collated by the authors as to show that the two questions are really one. The opinion of Hoppe-Seyler that the corpuscles are not composed of protoplasm infiltrated with pigment, as has generally been held, but that in them pigment replaces protoplasm to a great extent, is supported by their observations. The mammalian red corpuscle is declared not to be a cell in the strictly morphological sense of the word. It has no nucleus. It is also not a cell in the chemical sense, for nuclein is absent, and the only proteid present of the four normally existing in typical cells is cell-globulin, and this exists in the stroma in small quantities only. The fibrinoplastic action of this proteid is found to be really the action of fibrin-ferment, with which cell-globulin is supposed to be identical. The question whether the red corpuscles contribute to the formation of fibrin in coagulation as it usually occurs in shed blood is still to be answered.

Experiments by Dr. Krieuger, of Dorpat, to determine whether the amount of hæmoglobin contained in the splenic artery is greater than that in the splenic vein, showed an excess in the vein. The author therefore concluded that hæmoglobin is actually formed in the spleen. The results are consistent with those obtained by different methods by Drs. Malarsez and Picard in France, and Drs. Pashiutin and Vinogradoff in Russia.

Investigations have been made by J. R. Green on the part which is taken by calcium sulphate in promoting coagulation of the blood. By itself this salt can not cause clotting in a plasma which contains no ferment, but when the latter body is present it causes the action to be accelerated. Experiments to determine whether it acts by liberating or developing the ferment from some antecedent condition—that is, by converting zymogen into ferment—gave a negative answer.

Observations have been made by Prof. Kobert, of Dorpat, on the variation in the amount of fluid circulating through an organ or isolated part of the body in different animals, the experiments having been performed chiefly on the kidney. After its removal from the body of the animal, the organ was kept at a temperature of 38° C., and the blood, which was always obtained from the same animal, was maintained at the same temperature. A solution of the drug to be used was mixed with the blood. Solutions of salts which enter into the composition of the urine caused hardly any effect on the blood-vessels except those of the kidney, where their influence was obvious. The author was able to classify his results under three headings, which are—1, those drugs which do not possess a distinct or evident influence upon the blood-vessels, among which are alcohol, chloroform, caffeine, strychnine, nicotine, antipyrine, and chloride, bromide, iodide, and sulphate of sodium; 2, those which widen the blood-vessels are curare, carbonates of lithium and sodium, nitrate of potassium, nitrite of amyl, paraldehyde, ethereal oils, chloral hydrate, morphin, and atropin; 3, those which narrow the vessels are muscarin, physostigmin, veratrin, scillain, convallamarin, digitalin, and helleborin. The effect of the digitalis group was found to be quite marked in cases where the kidney was allowed to cool first, and when expos-

ure for fifty hours in the summer months had been allowed. This seems to prove that the effect is only on muscular fiber. Alcohol and chloroform are rendered prominent in not having any appreciable effect on the vessels, at least by this method of experimentation.

Hitherto, although most physiologists have considered that the pulmonary vessels probably possessed a system of vaso-motor nerves, no direct experimental proof of the existence of such a system has been obtained. In investigating this subject, Drs. J. Rose Bradford and H. Perry Dean adopted as the most reliable method the excitation one by one of the roots of the spinal nerves, with observation of the effects of such stimulation on the aortic and pulmonary blood-pressures simultaneously. The results of the experiments seem to indicate that there is a mechanism in the *medulla oblongata* stimulation of which causes a contraction of the pulmonary vessels, and that in certain dorsal nerves there are vaso-constrictor fibers passing to the pulmonary vessels. The experiments are continued.

A new instrument for registering pulse-beats and blood-pressure has been devised by Prof. Henry Sewall, of the University of Michigan, who calls it the Tympanic Kynograph. It consists of a support carrying adjusting screws and the registering lever, and a brass tube bearing at one end a flattened bell, whose mouth is closed by an imitation tympanic membrane with the convex surface outward. When it is to be prepared for an experiment, the tympanum is removed from its support, filled with diluted alcohol, and then connected with the tube by which attachment is to be made with the artery, after which it is returned to its support and clamped in position. The author claims for it: that it is delicate and accurate in its action, and has an almost unlimited range of operation; that it records at once not only the form of the pulse-wave, but the value of the blood-pressure as well; and that it is unequaled for convenience of manipulation.

Respiration.—The cause of the rhythmic activity of the respiratory center is not known. It does not reside in the vagus nerves, although they play an important part in the regulation of breathing, for it can go on, in a modified form, after they have been divided, and even after still more important separations have been made. The stimulus that keeps it up is not of a rhythmic nature; and the difficulty is presented of a continuous stimulus producing discontinuous activity in the organ on which it acts. Postulating, however, a primitive rhythmic activity in the respiratory center, Mr. Henry Head has attempted a study of the modifications which it undergoes, under the influence of stimuli produced by alterations in the volume of the lungs. Inspiratory activity ceases as soon as the lungs are inflated, and a pause occurs, during which the rhythm of the center is in abeyance, and the respiratory muscles are relaxed. Collapse of the muscles also abolishes rhythmic breathing, but the inspiratory muscles are in a state of strong tonic contraction. In both cases suppression is induced by alteration in the volume of the lungs, but rhythmic breathing is finally resumed, although the volume of the lungs is not again

changed. Hence it is concluded that the nervous mechanism of respiration has the power of adapting itself to any volume which the lungs may permanently assume. It is supposed that the adaptation is due to some change in the center rather than to exhaustion of the peripheral mechanism. The nature and extent of the influence produced by a certain volume of the lungs depend upon the actual volume and on its relation to the total volume to which the center has become adapted. An inhibitory stimulus appears to diminish the inspiratory energy expended by the center, and also in some way to increase its potential inspiratory energy. Reasons are given for supposing that collapse of the lungs below the normal volume produces an inhibitory stimulus, and that this is the true complement of the inhibitory stimulus caused by their dilatation. Both stimuli tend indirectly to increase the irritability of the center for the antagonistic stimulus, and thus adaptation to either form of stimulus must ultimately take place. When adaptation is complete, rhythmic respiration will begin again, but continuance of the stimulus is necessary to maintain the equilibrium of the center; for its sudden removal at once throws the center into the opposite form of activity without the intervention of any antagonistic stimulus. The vagi are found to produce upon the center during normal breathing the two effects of checking each inspiratory contraction when it has reached a certain height, and of increasing the inspiratory vitality of the center. Removal of them will increase the inspiratory contraction, and will set free the greater part of the inspiratory energy stored up in the respiratory center under the influence of inhibition.

Digestive System.—In the account of his studies of "The Histology of the Mucous Salivary Glands, and the Behavior of their Mucous Constituents," Dr. J. N. Langley deals with the microscopic appearance of the fresh and of the hardened gland, the various bodies that can be seen in saliva, the changes that take place in the gland-cells during secretion, the nature of the demilune-cells, and the nature of the mucous substance in the gland and in saliva. When a thin section of fresh gland is examined without the addition of fluid, all the alveoli have a ground-glass or irregularly granular appearance, but distinct separate granules are not seen. As the granules form much the greater part of the mucous cells, it is clear that they must be mucous in nature, and this is demonstrated experimentally. The behavior of the mucous cells under preparation and with various reagents is described in detail. If a gland is allowed to stay in the body for a day after death, it becomes firmer; and, when cut across, the exposed surface is more viscid than it is in a fresh gland. Further studies were made of the mucous cells which occur in the mucous membranes and skin of various animals and of cells in many other positions; and the author's conclusion is that no common account is possible for them all. He suggests, as the most general description applicable to them, that originally protoplasmic cells containing proteid granules form spheres of mucous substance, which may occupy nearly the whole of the cell or leave free a basal portion.

The spheres differ in their chemical characters, so that they may be more refractive than the cell-substance, or become so on treatment with salt solutions; or they may be of the same or nearly the same refractive index as the cell-substance, and remain so on treatment with salt solutions. In some cases the mucous spheres increase at the expense of the finely granular protoplasm and run together, so that the protoplasm is there present as a network running through the mass of mucin. The amount of protoplasm left as a network varies in different cases, and it may be nearly, and possibly entirely, absent from the luminal portion of the cells. In other cases the spheres increase at the expense of the cell-substance, without running together, so that they are separated from one another for the most part by fluid and not by cell-substance.

Dr. J. N. Langley's latest published paper on the physiology of the salivary secretion relates to the effect of stimulating the cerebral secretory nerves upon the amount of saliva obtained by stimulating the sympathetic nerve. It is found that stimulation of the cerebral nerve of either the submaxillary, the sublingual, or the parotid gland, increases the irritability of the gland to impulses reaching it by the sympathetic nerve.

Investigations by Dr. S. L. Rappoport, in St. Petersburg, tend to show that the digestive functions of the gastric juice are materially affected by sleep. The quantity of the gastric fluid secreted during sleep was shown to be much less than that secreted during waking hours; the chloride of sodium and the hydrochloric acid were diminished; but the secretion of pepsin did not seem to be much affected. It was also found that the digestive power of gastric juice secreted during sleep was lower than that secreted during waking hours. No alteration of the rennet fermentation was demonstrated during sleep.

Experiments by Sidney Martin and Dawson Williams show that if pig's bile be added to a solution of starch with pancreatic extract, the rapidity of the digestion is greater than without the bile, it being increased with the addition of quantities up to 7 per cent. of dried bile—which are equivalent to at least 30 per cent. of fresh bile. It was found that this property of the bile depends on the bile salts (hyoglycocholate of sodium). The change into dextrine and into sugar were both hastened; and the dextrine and sugar formed when bile-salts were present was one fifth more than when they were absent.

Drs. T. W. Shore and H. L. Jones have attempted, by examining a series of forms, to trace the steps in evolution between the undoubtedly tubular liver of the lower vertebrates and the apparently parenchymatous arrangement which constitutes the proper tissue of the lobule of the liver of the mammal. They find that there is no evidence in any type of vertebrates that the gland-tissue of the liver is, when fully formed, anything other than an anastomosing network of tubules; that there is no evidence of any change of plan as we ascend the vertebrate scale, or that the network has been formed by the fusion of originally distinct tubules; that the liver is originally a solid mass of cells which has become penetrated by blood-vessels, and thus divided into a network of anastomosing cylin-

ders; and that its peculiarities in different types depend upon the extent to which blood-channels have penetrated and subdivided it. The special characters of the mammalian liver are explained by a greater penetration of blood-vessels between the secreting cells, with their subsequent arrangement around foci of exit for blood; and by a coincident growth of connective tissue along the portal branches so as to map out the organ into lobules, a process which in different mammals has attained to varying degrees of perfection.

The cases of biliary fistula in man in which accurate observations have been made in respect to the amount of secretion and the chemical constitution of the bile, and the variations, if any, in the rapidity of its flow, have been few; for complications have usually been present that have detracted from the physiological value of the study. The observations of Drs. S. Monckton Copeman and W. B. Winston in a case in which apparently no such sources of error were present, have therefore considerable value. From them the results are deduced that the normal amount of bile secreted by the liver is about forty-eight ounces or two and a half pints a day in a man of twelve stone; that the rate of flow varies in accordance with the time of digestion of food, there being a rise between one and two hours after a meal, and the secretion not being continuous but marked by peristaltic contractions of the bile-ducts; that the color of the bile in man is probably always olive-green, biliverdin and bilirubin being the pigments present in greatest quantity; that the amount of solids present is normally about 10 per cent., the percentage being kept up by a continuous reabsorption of bile-salts from the intestine, following on their secretion; that bile is necessary to the assimilation of fats, but not absolutely so, although doubtless of use, for that of proteids. Its purgative action is more than doubtful; that the bile has no antiseptic action, although it is able to a small extent to control putrefactive changes; and that stercobilin is probably formed by reduction of the bile-pigments in the intestine, but urobilin appears to be formed in the liver, together with the bile-pigments, by a slight change of metabolism.

Nutrition.—Dr. Klemperer has described his experiments in determining the proteid needs of the animal economy in health and in certain pathological conditions, particularly with reference to Voit's estimate that the human body in health requires daily from one hundred to one hundred and twenty grammes. He had endeavored, working from the clinical point of view, to find whether an increased proteid metabolism can be prevented or diminished by an increased ingestion of carbohydrates or fats. He carried out experiments on the nutrition of two healthy persons, in which the daily dose of proteids was considerably diminished, while in compensation larger quantities of fats, sugar, and alcohol were administered. The nitrogen excreted in the urine was constantly less in amount than that taken in the food, thus showing that healthy, active men can be fed with largely diminished amounts of proteid without the occurrence of any destructive metabolism of their tissue-proteids. He next proceeded to investigate whether, in diseases which are characterized by an abnormally large breaking down

of tissue-proteids, this increased nitrogenous metabolism could be lessened by the ingestion of an increased quantity of non-nitrogenous food. Experiments were made, in some diseases upon animals, and in others upon the human subject; and the results were obtained which correspond to the supposition under which the experiments were started. A considerable reduction of the nitrogen expelled in the urine was observed when only moderate quantities of proteids were given, while increased amounts of carbohydrates, fats, and alcohol were administered.

Dr. Sauermann has read a paper in the Physiological Society on the effect of feeding young birds with cayenne pepper in imparting a ruddy color to their plumage. The effect appears only when the pepper is fed to the birds before they molt, and is facilitated by moisture. Some of the constituents of the pepper, as piperin and the red coloring matter alone, are inactive. It is rather the triolein, which occurs in the pepper in large quantities, together with the characteristic pigment, which brings about the change of color by holding the red pigment of the pepper in solution. Glycerine may be used instead of triolein to bring about the same result. The red pigment of the pepper is also stored up in the egg-yolk. The first appearance of the pigment in the yolk may be observed as a colored ring four days after the commencement of feeding with the pigment dissolved in fat; after a further two days' feeding the whole yolk is colored.

The distribution and significance of iron in the animal organism have been studied by Schneider, who was able to find that substance in greater or less quantity in the cell protoplasm and nucleus of all classes of animals, while the liver and spleen were the organs in which its occurrence was most marked. The connective tissues were very rich in iron, and it was found with similar constancy in the cuticular layers and quite constantly in the extreme tips of fishes' teeth. The more the author extended his investigations over the most widely differing classes of animals, whether on land, or in fresh water, or in the sea, and the more widely different were the organs he examined, by so much the more was it seen that iron is universally present in the animal organism. Its importance is pre-eminently physiological.

An account of his researches on the formation of the bony layer of the skin has been given by Dr. Blaschko, of Berlin. They indicate that the Malpighian layer is formed of polygonal cells, which are pierced by so considerable a number of fibers that the cell-substance of each consists of a network of fibers. These fibers pass through two or three cells in succession, thus uniting them one to the other; between them, and external to the cells, is found the intercellular fluid, and similarly a fluid substance in the interior of the cells. The growth of the bony layer begins in the *stratum granulosum*, with the appearance of Waldeyer's kerato-hyalin granules in the fiber; these granules then become larger, and the fibers disappear. In the *stratum corneum* fibers again make their appearance in the dried cells, which have now lost the nucleus they possessed when they formed part of the Malpighian layer.

The investigations by Drs. C. S. Sherrington and C. A. Ballance, of the formation of scar tissue,

were carried on to determine whether the colorless corpuscles of the blood, which are known to be capable of passing from the vessels into the intervascular tissue, are also the sources of the new tissue which the inflammatory processes may produce. Cohnheim had made a positive affirmative reply to this question, and held steadfastly that the colorless corpuscles which wander from the blood-vessels into an area of inflammation were not only the source of pus when pus-cells appeared, but were the formative cells for the new tissue if any new tissue was formed. Zeigler's conclusions were of a similar character, while other authors have disputed them. The present authors, having determined to repeat Ziegler's experiments, studied the question of the capacity of leucocytes to produce a fibrous connective tissue. In most points the observations confirmed the original ones of Ziegler. But an important disagreement was noticed, in the fact that in the present experiments there were in the tissue plasma of a part subjected to irritation two kinds of cell: namely, leucocytes indistinguishable from and probably identical with the colorless corpuscles of the blood; and plasma corpuscles, cell elements proper to the connective tissue of the part offended. The cell believed to play the only actively constructive part in all the energetic upbuilding of new tissue is the plasma-cell, a corpuscle absolutely distinct from the colorless corpuscle of the blood. These free cells seemed to exist in small number in the tissue plasma even under normal circumstances; and where the connective-tissue corpuscles are proliferating, as within an inflamed area, they were enormously more numerous. Out of them, in the experiments arose the permanent or inflammatory membranes that were formed. The colorless blood-cells that may have entered along with them had no permanence of possession; and no support was given by the observations to Cohnheim's view of the genesis of cicatricial tissue from leucocytes.

Muscular System.—The views of different observers upon the nature of the coloring matter of muscle vary. Kölliker described it in 1850. Valenciennes and Frémy ascribed it to a peculiar substance, which in the trout they called salmonic acid. Kuhne regarded it as identical with hæmoglobin. Krukenberg and Wagner with rhodophane. MacMunn has recently sought to show that the tissues of many vertebrates and invertebrates contain a special coloring matter which he names histohæmatin, having a spectrum closely resembling that of hæmochromogen, while the muscles contain a special coloring matter named myohæmatin, with a peculiar spectrum. Ludwig Levy has concluded that MacMunn's myohæmatin is not a coloring matter proper to muscle, but is a product of the disintegration of hæmoglobin, and identical with hæmochromogen.

It is observed by Dr. Lauder Brunton that there are several phenomena connected with muscular contraction that are not easily explained on the ordinary supposition that muscular fiber, voluntary and involuntary, contracts only in a longitudinal direction; while they may be explained on the hypothesis that relaxation is not a mere passive state, but is due to contraction in the transverse direction. These phenomena are: the local dilatation which occurs in veins on

electrical stimulation; Weber's observation of the elongation of a loaded muscle on stimulation; the active dilatation of the iris on the application of atropine in animals where no dilator muscle has been satisfactorily shown to exist; and the fact observed by Dr. Cash and the author that theine may cause in muscles either enormous contraction, no contraction, or relaxation—a phenomenon which seems to indicate the presence in muscle of two opposing forces, which may either counterbalance one another or cause positive elongation or contraction; and the observation of Von Kries that when a muscle has been made to contract by stimulation, a second stimulus affecting the muscle during its relaxation does not at once arrest the descent of the curve, but only does so when the second stimulus by itself would cause marked action.

The process by which the quadriceps muscle is stimulated in the movement called knee-jerk—which takes place when the *ligamentum patellum* is struck—has been investigated by Dr. Warren P. Lombard in studies on what he calls its re-enforcement. The action has been considered by some as reflex, by others as a purely peripheral process. The latter regard the excitation as similar to that which results from a direct blow on the muscle; they urge that the quickness with which it takes place forbids any other explanation; and when the advocates of reflex action show that the jerk is lost if the reflex arc is destroyed, they assume that the ability of the muscle to respond to the twitch transmitted to it from its ligament is dependent on the tension of the muscle, and that, in turn, is dependent on tonus impulses coming to it from the spinal cord. Dr. Lombard finds, after his experiments, that the reflex theory readily explains the intimate dependence of the phenomenon on the spinal cord, while the time-argument is inconclusive; and that the peripheral theory is not tenable, because the explanation which it offers of dependence upon the spinal cord is unsatisfactory. Its assumptions that muscle-tonus is continuous, and that the irritability of the muscle to mechanical stimuli is dependent on its tension, are without proof. It is also opposed by facts which are set forth in the paper. We should therefore adopt the reflex theory, and look to future experimental work on reflex times to remove the doubt cast upon it by the rapidity of the process.

From experiments on the action of lime, potassium, and sodium salts, Sydney Ringer has found that skeletal muscle differs from cardiac muscle in that its contractility lasts longer in saline solution; that contractility is not improved or restored by adding lime salts to saline; and that lime salts cause no prolongation of the beat, no delay in relaxation. It is similar to cardiac muscle in that lime salts added to saline sustain its contractility, and are antagonistic to potash salts. This contractility remainder is removed or prevented by lime salts, in a much less degree by sodium bicarbonate, and is increased by potassium chloride. The contractions in saline solution of a muscle previously weakened by frequent contractions are strengthened by adding to saline a potassium salt. A strong contraction induces much contraction remainder.

J. R. Green finds that fibrin on being acted

on by solutions of neutral salts of from 5 to 10 per cent. strength is decomposed with the formation of two fibro-globulins, which differ from each other as to their coagulating points, their solubility in 1-per cent. salt solution, and their behavior with acids. Neither body corresponds to either fibrinogen or paraglobulin, and they can not be made to reform fibrin. The change is brought about quite apart from putrefactive influences.

The investigation of muscle-plasma, heretofore exemplified by the researches of Kühne with frogs, has been extended by W. D. Halliburton to warm-blooded animals. Incidentally, this author's research included an investigation of the proteids of muscle-plasma and of muscle-serum. With a few slight exceptions, the facts discovered by Kühne in relation to the preparation of muscle-plasma from frog's muscle are also true with regard to mammalian muscle. These facts are, principally, that the substance can be prevented from coagulating at temperatures below 0° C.; that at about this temperature it coagulates slowly, and at a temperature of 40° C. almost instantaneously. It is described as a liquid of sirupy consistency, of a faintly alkaline reaction, and separating at a suitable temperature into a solid clot composed of the proteid substance called myosin, and a liquid residue which is squeezed out by the contraction of the clot, and which has received the name of muscle-serum. Of the influence of neutral salts on muscle-plasma, it was shown that admixture with their solutions is able to prevent coagulation; that dilution of the salted muscle-plasma brings about the coagulation thus prevented; that the coagulation of diluted salted muscle-plasma occurs readily at temperatures of between 30° and 40° C., more slowly at lower temperatures, and is prevented by a temperature of 0° C.; that with the exception of the formation of acid which occurs simultaneously with the production of a clot of myosin, the phenomena regarding the formation of myosin are similar to those which are observed in the formation of fibrin from blood-plasma; and that this similarity suggests that the formation of myosin may be due to a ferment, in the same way that the formation of fibrin from the fibrinogen of blood-plasma is due to the action of the fibrin ferment. Myosin which had been coagulated, or that taken from a muscle which had undergone *rigor mortis*, and had been redissolved by the salt solution, underwent re-coagulation when that salt solution was diluted. The clot which thus appeared was determined upon various grounds of evidence to be the result of a real process of coagulation, and not of a simple precipitation upon dilution. From muscle-plasma were obtained the proteids paramyosinogen, myosinogen, myoglobulin, muscle-albumen, and myoalbumose or proteose, together with the pigment products hæmoglobin and myohæmatin. Myoglobulin, muscle-albumen, and myoalbumose, together with hæmaglobin in the case of the red muscles, constitute the proteids of the muscle-serum.

Secretion.—A series of experiments made in order to determine the connection between the coloring matters of blood, bile, and urine, are described by Dr. C. A. MacMunn, in a paper "On the Origin of Urohæmatoporphyrin, and

of Normal and Pathological Urobilin in the Organism." They were chiefly conducted spectroscopically. From the results, the author is led to suggest as the simplest way, for the present, of explaining the origin of the coloring matters referred to, that bilirubin and biliverdin are produced in the liver mainly from effete hæmoglobin; these are acted on in the small intestine by the digestive and putrefactive ferments, and some at least are changed into simple metabolites like the urobilin-like substance of bile. The hæmoglobin and histohæmatin of meat, or their metabolites, are by the influence of the same ferments acted upon in the same manner, and carried with the changed bile-pigments through the branches of the portal vein into the liver, where they undergo changes of which we are at present ignorant. A portion of both the bile and hæmatin derivatives are, however, passed on along the intestinal canal and form stercobilin. This may, under certain unknown conditions, be taken up, probably accompanied by ptomaines, and excreted in the urine as pathological urobilin. But sometimes we meet with pathological urobilin which shows such a resemblance to Le Nobel's urobilin as to lead one to suppose that it is entirely derived from hæmatin, or sometimes it is accompanied or replaced by urohæmatoporphyrin, the latter having, undoubtedly, no biliary origin; in such cases it must be produced by destruction of hæmoglobin or histohæmatin in various tissues besides the liver. Normally, doubtless, the liver and other blood-metabolizing glands are able to pick the effete pigments out of the circulation and change them into bile-pigments or others, and to a certain extent do so when they are present in slight excess, but under certain conditions these organs are unable to deal with the excess of pigment. There is little doubt that in acute rheumatism a large amount of urohæmatoporphyrin is formed, and in that disease, probably, the muscles are the seat of the formation of a great part of it. Indeed, it would appear that, in some cases, the presence of urohæmatoporphyrin indicates the existence of some very active fermentation attended by energetic reduction, but beyond this one can; with our present knowledge, say very little else.

Dr. A. Baginski has communicated the results of his observations and experiments respecting acetonuria in children. He found that acetone was present in small quantities in the urine of healthy children, though not in all; and that in the case of fever attending any of a very wide range of diseases, the quantity of acetone present in the urine was increased. When children were affected with convulsions, attended by serious disorders in the digestion, a larger proportion of acetone was regularly observed in their urine. Experiments showed that acetone was not produced in the blood by carbo-hydrates, but from the decomposition of albumen. A longer course of flesh food yielded a considerable increase in the secretion of acetone, whereas, during a course of feeding with farinose and fatty food, the yield of acetone rapidly declined, and at length ceased. When a large deposit of urine occurred in the animal body, after the period of lactation, for example, no acetone was found in the urine, even though food rich in albumen was adminis-

tered. No causal connection between acetonous urine and convulsions could be demonstrated either clinically or experimentally. In rachitis, in which convulsive attacks often occurred, no acetone was found in the urine, nor was the administration of large quantities of acetone found to produce any effect on the nervous system.

Action of Poisons.—It has been shown by Brown-Séquard and D'Arsonval that the poisonous effects of exhaled air are produced not by carbon dioxide, but by some poison, simple or complex, not yet examined and identified. In the experiment demonstrating this view, a series of air-tight metallic cases were connected with one another, and a current of air was drawn through the series by means of a suction-pump. In each of the cases was placed a rabbit. The rabbit in the first case thus breathed only pure air; those in the succeeding cases breathed the air which came from the preceding cases, and which was therefore more and more contaminated. With the exception of those in the first and second cases, young rabbits died very quickly, those in the last two cases living only two or three days. If a dying rabbit was removed and placed in pure air, it recovered after from five to ten days. The results in the case of older rabbits were the same, but took more time to develop. Although the last of the cases never contained more than 6 per cent. of carbon dioxide, it was deemed desirable to prove that this did not cause the death of the animals. It could not be removed with caustic alkali, for that would also remove or destroy the poison; but by passing the air through a tube filled with glass beads moistened with strong sulphuric acid, the poisonous matter was destroyed and the carbon dioxide was left unchanged. By placing such a tube between the sixth and seventh cases it was found that the rabbit in the seventh case, although having a full supply of carbon dioxide, did not die. In other experiments the authors have shown that air containing a considerable percentage of carbon dioxide (free from hydrochloric acid) can be breathed with impunity by men, dogs, rabbits, etc. If the poison contained in exhaled air be absorbed and the solution injected into an animal, death generally results. The fact that the solution may be heated to the boiling-point of water without destroying its fatal properties goes to show that its effects are not due to microbes.

Doubts have been expressed by some authors of the capability of the process of putrefaction in itself to produce the cadaveric alkaloids or ptomaines. More recently, V. Oliveri has shown that the most dilute acids will cause the production of those substances from the decomposition of the lecithin and proteids present in the preparation. Prof. Panum, of Copenhagen, had demonstrated in 1865 that albuminous substances yield by putrefaction a poisonous body soluble in water, insoluble in alcohol, and capable of withstanding the temperature of the boiling-point. This has been confirmed by Bergmann, who described the compound, *sepsin*, as generated by putrefaction, and by Prof. Burdon Sanderson, Dr. Drysdale, and others. John M. Wyburn, experimenting with Panum's *sepsin*, has obtained reactions from which it appears that, while it possesses many of the characters

of the peptones, it also affords evidence of the presence of one or more of the cadaveric alkaloids; and such alkaloids must either be insoluble in alcohol themselves, or in combination with some substance which makes them so; and, unless the alcohol were alone sufficient to produce them in the putrid solution, their pre-existence may be reasonably inferred.

In connection with the danger of eating diseased meat, says Dr. J. Lauder Brunton, some experiments of Bocklisch may serve to explain the rarity of ptomaine-poisoning. In observations upon Finkler's bacillus, found in the dejections in cases of sporadic cholera, no poisonous substances appeared to be produced. When, however, that organism developed in connection with putrefactive bacteria, a highly poisonous substance, methyl-guanidine, was formed. A similar combination of micro-organisms may serve to explain cases of acute poisoning by meat or game which is undergoing decomposition. The intermediate products in the splitting up of the complex albuminous molecule, such as albumose and peptone, though representing essential stages in the process of digestion, appear to act as powerful poisons when introduced into the blood without passing through the liver. The thymus gland, too, which is commonly eaten as sweet-bread, was shown by the late Dr. Wooldridge to cause almost instantaneous clotting of the blood when the juice was injected directly into the veins of the rabbit. The albumoses and peptones formed during digestion seem to have the opposite action and to prevent coagulation. They produce coma, convulsions, and death. The venom of serpents has been shown to belong, in part at least, to this class of substances, and its poisonous effects are weakened but not destroyed by boiling. An interesting link between the ferments or albumoses and disease is furnished by the discovery of Roux and Versin that the poison formed by some disease-germs, as in diphtheria, has its virulence destroyed by boiling. As albuminous molecules become more broken up, the products of decomposition no longer have their poisonous properties destroyed by heat; but while they are too much altered to permit of reconstruction into albuminous substances, a further process of decomposition converts them into the comparatively harmless ammonia and carbonic acid, so that, by the time they reach the blood through the normal avenues, these intermediate substances are harmless. The alkaloids derived from the decomposition of albumen in the animal body have been termed leucomaines or ptomaines, according as the decomposition occurs before or after death. Many of them appear to be compound ammonias.

PORTUGAL, a constitutional monarchy in southwestern Europe. The present sovereign is Carlos I, the third of the line of Braganza-Coburg, born Sept. 28, 1863. He married at Lisbon, on May 22, 1886, the Princess Amélie, born Sept. 28, 1865, eldest daughter of the Comte de Paris. Their children are the Prince Royal Louis Philippe, born March 21, 1887, and Prince Manuel, born Nov. 15, 1889. While Duke of Braganza, Carlos devoted himself to the improvement of agriculture, especially the cultivation of wheat, with the view of making Portugal independent

of foreign supplies. He was also interested in military affairs, doing practical work in the torpedo service and as president of the sub-committee of the general committee on the defense of Lisbon, drawing up the report that was adopted. He succeeded to the throne on the death of his father, Luis I, Oct. 19, 1889. His coronation took place on Dec. 28.

men, with 7,821 horses, 4,870 mules and 264 field-guns. In the colonies Portugal maintains a regiment of infantry and 7,633 colonial troops.

The Navy.—The Portuguese war navy in 1889 consisted of an ironclad corvette, 6 unarmored cruisers, 14 gunboats, 4 other armed steamers, 14 gunboats, and 5 torpedo-boats. It was manned in 1887 by 236 officers and 2,852 sailors.



THE KING AND QUEEN OF PORTUGAL.

The Cabinet that was in office in 1889 was first constituted in Feb. 20, 1886. It was composed of the following members; President of the Council and Minister of the Interior, J. L. de Castro Pereira Corte Real; Minister of Justice, F. A. de Veiga Beirao; Minister of Finance *ad interim*, H. de Barros Gomes; Minister of War, Gen. J. J. de Castro, appointed Nov. 15, 1888; Minister of Marine and the Colonies, J. Ressano Garcia, appointed Feb. 23, 1889; Minister of Foreign Affairs, H. de Barros Gomes; Minister of Public Works, Commerce, and Industry, E. J. Caelho, appointed Feb. 23, 1889. On Nov. 10, 1889, Augusto Cunho became Minister of Finance, and Maj. Franzini Minister of War.

Finance.—The total receipts for 1887-'88 were 48,543,302 milreis, comprising the balance in the treasury of 7,702,863 milreis, 39,731,254 milreis of ordinary receipts, and 1,109,185 milreis of extraordinary receipts. The expenditures for ordinary purposes were 38,244,042 milreis, and for extraordinary purposes 6,003,714 milreis, leaving a surplus of 4,295,546 milreis.

The internal debt at the end of 1887 amounted to 261,836,308 milreis, and the foreign debt to £50,801,576 sterling, or 228,607,695 milreis.

The Army.—The peace effective of the army on Aug. 31, 1889, was 2,129 officers and 33,294 men, with 4,034 horses and mules. The war effective in 1888 was 3,862 officers and 121,195

Commerce.—The values of the imports and exports of the various classes of merchandise for 1888 are given in milreis in the following table:

CLASSES.	Imports.	Exports.
Articles of alimentation.....	10,729,658	16,095,613
Animals.....	2,322,573	256,006
Tobacco.....	706,989	.....
Silk.....	1,222,352	25,743
Cotton.....	3,491,187	116,467
Linen.....	880,663	25,741
Wool, skins, and leather.....	1,903,663	266,961
Timber.....	1,326,177	122,287
Minerals, glass, etc.....	2,955,019	515,751
Metals.....	2,476,946	175,368
Instruments and machinery.....	2,537,825	152,366
Other manufactures.....	1,040,726	2,149,643
Bags and casings.....	82,175	.....
Various products.....	2,090,742	244,279
Articles free of duty.....	4,189,340	2,931,317
Total merchandise.....	37,956,035	23,446,264
Precious metals.....	6,684,908	621,228
Grand total.....	44,640,943	24,067,492

The imports from the United States were valued at 4,978,000 milreis, and the exports to the United States at 647,000 milreis.

The commercial navy in 1889 consisted of 43 steamers, of the aggregate capacity of 19,354 cubic metres, and 400 sailing vessels, of 58,552 cubic metres.

Railroads.—The main lines of railroad in July, 1888, had a total length of 1,761 kilometres, besides 382 kilometres not yet open to traffic. Of subsidiary lines there were 144 kilometres completed and 109 kilometres building.

Posts and Telegraphs.—The number of internal letters that passed through the post-office in 1887 was 15,906,792; post-cards, 2,994,476; registered letters, 448,795, circulars and printed inclosures, 15,605,752. In the international service there were 3,927,606 ordinary letters, 116,799 post-cards, 2,789,737 printed inclosures and circulars, and 222,369 registered letters. The receipts of the postal and telegraph service were 4,575,774 francs and the expenses 4,862,295 francs. The telegraph lines have a total length of 5,137 kilometres, with 11,948 kilometres of wire.

Colonial Possessions.—The possessions of Portugal in Africa have an estimated area of 1,805,550 square kilometres and an aggregate population of 4,138,300 souls. The area of the Asiatic possessions is estimated at 19,666 square kilometres and the population at 849,600 souls. There were 60 kilometres of railroad in Angola completed in 1888, 315 kilometres were in process of construction, and 250 kilometres under consideration. On Oct. 31, 1889, the section of the Royal Trans-African Railroad between San Paul de Loanda and Ambaca was inaugurated. In Mozambique the railroad from Delagoa Bay to the Transvaal border has a length of 91 kilometres. In the Asiatic colonies there are 54 kilometres of railroad in India.

Legislation.—The attempts of the Government to extend the system of monopolies in 1889 excited popular opposition. A proposal to pay a debt of 2,500,000 francs to the heirs of the farmer of the tobacco monopoly, was denounced as illegal, and raised such a storm in the Chamber that on Feb. 4 the Cortes, which had met on Jan. 2, were closed by royal decree till April 5. Senhor Navarro, the Minister of Public Works, and the Minister of Finance, Cyrillo de Carvalho, resigned. Barros Gomes, who had temporarily administered the department of Marine and the Colonies, gave that charge into the hands of Ressano Garcia, and assumed provisionally the direction of the Ministry of Finance. The other vacated Ministry was given to José Coelho. The cause of the political crisis was two measures of the Government interfering with the course of trade. One of these, with the object of preventing smuggling, required that every piece of cloth should be stamped by officials, and that goods not bearing the official stamp might be seized as contraband. The other was the establishment of a subsidized wine company, which should deal in wines that had been inspected and guaranteed pure by Government officials, and have the assistance of consuls in finding markets. The object was to improve the quality and reputation of Portuguese wines, and aid wine-growers by extending the foreign sales. The retailers of dry goods and the wine-merchants, English and Portuguese, by way of protest, closed their establishments. A second attempt to introduce the wine monopoly in May was followed by a general lock-out of all the trades connected with the export of wine in Oporto, and excited meetings of workmen, which were broken up by cavalry charges. A bill was

passed in June abolishing the export duty on wine and brandy, and granting bounties to wine-growers producing wine suitable for export.

In the general election, which took place in October, the Opposition gained the seats in Oporto and its suburbs, yet the Government majority was not otherwise diminished, the Ministerialists elected numbering 102 out of the total of 140. In November the provisional contract made in March, granting a subsidy to the new wine company, was pronounced illegal by the courts, and was therefore annulled.

PRESBYTERIANS. I. Presbyterian Church in the United States of America.—The "Comparative Summary" of this Church, published with the "Journal" of the General Assembly, exhibits the growth during the fifteen years since 1874. The statistics of the first and last of those years are here given.

ITEMS.	1874.	1889.
Synods	85	29
Presbyteries	174	211
Candidates	767	1,124
Licentiates	309	397
Ministers	4,597	5,936
Licensures	140	269
Ordinations	159	226
Installations	354	437
Pastoral dissolutions	278	361
Ministers received	55	105
Ministers dismissed	26	33
Ministers deceased	85	98
Elders .....	..	23,258
Deacons .....	..	7,455
Churches	4,946	6,726
Churches organized	174	236
Churches dissolved	63	67
Churches received	11	26
Churches dismissed .....	..	2
Added on examination	36,971	55,144
Added on certificate	23,096	36,130
Communicants	495,634	753,143
Baptisms, adults	11,652	19,602
Baptisms, infants	18,838	24,384
Sunday-school members	516,971	833,437
<i>Contributions:</i>		
Home missions	\$416,067	\$883,501
Foreign missions	508,520	709,811
Education	243,952	154,685
Publication	61,605	101,278
Church erection	145,063	272,548
Relief fund	73,927	*272,016
Freedmen	47,419	113,071
Sustentation	63,115	46,682
General Assembly	36,435	69,538
Aid for colleges .....	..	169,951
Congregational	6,642,108	9,014,391
Miscellaneous	882,576	1,033,291
Total	\$9,120,792	\$12,390,818

* Includes part of Centenary fund. The receipts for the Centenary fund as a total amount to \$695,734.86.

According to its report made to the General Assembly, the receipts for the year of the Board of Home Missions had been \$810,391 for current work, \$6,159 for Permanent and Trust funds, and \$16,097 for the Sustentation department. The board returned the amount of the Permanent fund, the income only of which could be used, at \$268,200, and held real estate valued at \$125,000. It had in its service 1,592 missionaries and 313 missionary teachers, who returned as connected with their work, 93,188 members of the church, with 156,748 persons in congregations; 2,439 Sunday-schools, with 149,348 members; 10,490 additions during the year on profession of faith; 4,183 baptisms of adults and 5,090 of infants; 1,804 church edifices, valued at \$4,702,-

614; 157 church edifices built during the year at a cost of \$483,335; 849 Sunday-schools organized; and 369 parsonages, valued at \$474,138. One hundred and sixty churches had been organized, 45 had become self-sustaining, and \$156,203 of church debts had been canceled during the year. The work of the board had been carried on in the older States, where the changes of population were giving rise to new calls for effort, in the Southern States, in cities, among foreign populations, and among the Mormons. A special school work was developing among the white populations of the Cumberland and adjacent mountain districts. The entire school work was in the hands of the Woman's Executive Committee; and its condition was tabulated as follows:

LOCATION.	Schools.	Teachers.	Pupils.
Among the Indians.....	30	140	2,217
Among the Mormons.....	37	95	2,427
Among the Mexicans.....	30	58	1,376
In the South.....	10	25	765
Total.....	107	318	6,785

The Board of Church Erection had received \$125,202, and had paid out \$135,724. It had aided, by appropriations to chapels, churches, and manses, and in payment of losses from fire, 250 churches.

The Board of Ministerial Relief had received \$127,502, of which \$103,586 had come in the form of direct contributions from churches and individuals, and the rest in interest, besides boxes of clothing valued at \$6,456. Its permanent fund amounted to \$417,960. It had given aid to 595 cases of ministers, widows of ministers, and orphan families; and twenty families had been provided for at the Ministers' Home at Perth Amboy, N. J.

The Board of Education had received \$95,834, of which \$18,874 had been given in legacies, and had expended \$95,740. Its invested Permanent fund amounted to \$70,080, and had yielded an income of \$3,457. The number of candidates under its care was 732, among whom more than twelve nationalities were represented. The report showed that of the present roll of 5,789 ministers in the church, 2,356 had been aided by the board.

The receipts of the Board of Publication and Education in its Sabbath-School Department had been \$75,130; and the board closed the year with a balance of \$34,818 in its Missionary fund. Three times as many schools had been organized and three times as many children gathered into them as in any previous year of the board's history. The experiment of enlisting students of the theological seminaries into the missionary service of the board had been tried with success. Missionaries had been sent to the colored people in the South, and five colored Sabbath-school missionaries had been appointed to work in Virginia, North Carolina, South Carolina, and Florida. Statistics were presented from 5,137 Sabbath-schools, with which were connected 81,202 officers and teachers and 837,737 pupils. The receipts of the Missionary fund had been \$100,025, and the expenditures \$65,206.

The receipts of the Board of Foreign Missions had been \$847,492, or \$53,687 less than those of

the previous year. Besides its own proper missions, the board had aided and co-operated with the Evangelical Missionary Societies of Brussels and Geneva, with the Waldensians, and with the French Foreign Missionary Societies, in Europe. The Church had in all its foreign fields, including missions among seven Indian tribes in the United States and the Chinese and Japanese in the United States, and in Mexico, Guatemala, the United States of Colombia, Brazil, Chili, Liberia, Gaboon and Corisco, Syria, Persia, India, Siam, Laos, China, Japan, and Corea, 189 American ministers, 151 ordained native ministers, 195 native licentiate ministers, 343 lay missionaries, 863 native lay missionaries, 321 churches, 25,346 communicants. Number of communicants added during the year, 3,067; amount of contributions from the native churches, \$38,741; number of schools, 543, with 27,394 pupils; pupils in Sunday-schools, 24,415; students for the ministry, 123.

The General Assembly met in New York city, May 16. The Rev. Dr. William C. Roberts, President of Lake Forest University, was chosen moderator. The Committee on Co-operation with the Southern Presbyterian Church made a report relating the efforts of the joint committee to agree upon a basis of union. A meeting had been held in New York in December, 1888, and another in Atlanta, Ga., in April, 1889. It appeared that co-operation already existed between the Boards of Foreign Missions and of Publication of the two churches. For co-operation in the home field the committee recommended that when presbyteries belonging to the two assemblies cover the same ground, they be advised to agree upon a division of the parts of the common field upon which their several efforts shall be exerted, so as to prevent hurtful rivalry or antagonism; that weak churches, unable alone to support a minister, may be grouped with churches of the other assembly under a pastor from either body, their contributions to go to their respective assemblies, or that, if near enough to one another, they may be consolidated; that persons connected with churches of one assembly moving into the bounds of churches connected with the other assembly, be advised to unite with those churches, or, if forming a church, to unite with the presbytery with which those churches are connected; and that where affiliations with one assembly are too strong to permit their severance, persons within the bounds of the other assembly may organize into churches which shall be under the care of the nearest presbytery of the church to which they belong. The report further declared that the committee recognized: "that no subjects likely to come under their consideration among the topic regarding co-operation are fraught with profounder interest or touch graver issues than the evangelization of the colored people within our bounds, as well as the settlement of their wisest and most profitable ecclesiastical relations among us. Many of the colored people are now members of our respective churches, while many of the actual prospective ministers of their own race are training in the schools belonging to one or the other assembly or are members of presbyteries in connection with these bodies. In the Southern Assembly the policy was adopted many years since

of entire independence for the colored people for their church organizations as the ultimate issue of the cordial efforts of that Assembly on behalf of their colored brethren. The Northern Assembly, on the other hand, has pronounced itself as not in favor of setting off its colored members into a separate independent organization. It believes that our great work among the colored people for their moral and religious development is to be done by recognizing those who are in the Church as entitled to all the rights and privileges which are involved in church membership and ordination." However, since the status in both churches finds them practically employing the same methods at present in their respective bodies as regards the education of colored ministers, this joint committee agrees to recommend to the two assemblies:

The schools and churches under the care of the Board of Missions for Freedmen and any corresponding work undertaken by the Southern Assembly, especially its Tuscaloosa Institute for the education of colored ministers to the givers of our respective churches for practical aid as mutually concerned in the great missionary work for the glory of God and the blessing of our common country.

The report was adopted, after striking from the original a clause seeming to give the approval of the Assembly to the organization of presbyteries of colored churches.

A committee appointed by the previous General Assembly on "Education in its relation to vacant churches and unemployed ministers" made a report, with statistics showing that of the 1,200 vacant churches of the denomination, more than 400 had only from 1 to 25 members each, and the Board of Home Missions, now employing 1,200 missionaries, needed 200 more. The committee, recognizing the need of pastors for these churches and the duty of the Assembly to do all in its power to meet the deficiency, recommended that small churches be grouped in joint pastorates or in circuits, or weak churches be associated with stronger churches, or an adjacent pastor be appointed to the care of one or more of the small congregations, or intelligent elders be appointed to their oversight; that, while the presbyteries should exercise great care in receiving ministers from other denominations, all persons be welcomed to the ministry of the Church who are drawn by right motives and are duly qualified for the service; and that when candidates can not follow the full collegiate course, they be required to pursue a full course in some theological seminary, this course to be introduced by at least a year of preparatory training.

The Board of Missions for Freedmen was continued and commended to the Church for gifts, as against a proposition to consolidate it with the Board of Home Missions. It was authorized to control and sustain the entire work among the freedmen, not depending upon the contributions of the Church, but being permitted to call upon the other boards for aid when needed; it was instructed to give more attention to industrial education; and was advised to confer, at least once a year, with the Board of Home Missions on questions of mutual interest—and with other boards should exigencies demand it. The Assembly decided to overture the presbyteries on the following questions: 1. Do you desire a

revision of the Confession of Faith? 2. If so, in what respects and to what extent? The following resolution on temperance was adopted:

The General Assembly, in reaffirming the deliverances of former assemblies on the subject of temperance, calls particular attention to the deliverance of 1883, as follows: "That we earnestly recommend to the ministers and congregations in our connection, and to all others, to persevere in vigorous efforts until laws shall be enacted in every State and Territory of our beloved country prohibiting entirely a traffic which is the principal cause of the drunkenness, and its consequent pauperism, crime, taxation, lamentation, war, and ruin to the bodies and souls of men, with which the country has so long been afflicted."

To this a resolution was added explaining "That the deliverances of this Assembly on the subject of prohibition are not to be construed as the advocacy of any political party."

II. Presbyterian Church in the United States (Southern).—The statistical summary of this Church published in the "Journal" of the General Assembly for 1889 presents a comparative view of its growth during sixteen years, from 1874. The following table exhibits the statistics for 1889 as compared with those of 1874:

ITEMS.	1874.	1889.
Synods	12	13
Presbyteries	64	68
Candidates	199	317
Licentiates	84	55
Ministers	972	1,145
Churches	1,764	2,321
Licensures	63	60
Ordinations	45	61
Installations	65	133
Ministers deceased .....	..	22
Pastoral dissolutions	35	101
Ministers received	5	9
Ministers dismissed	3	10
Churches organized	49	63
Churches dissolved	10	5
Churches received .....	..	6
Number of ruling elders .....	..	7,254
Number of deacons .....	..	5,215
Added on examination	7,129	9,501
Added on certificate	3,429	5,939
Total communicants	105,956	161,742
Number of adults baptized	2,017	3,389
Number of infants baptized	4,249	4,971
Baptized non-communicants .....	..	33,528
Teachers in Sunday-schools, etc. ..	..	13,436
Scholars in Sunday-schools, etc. ..	60,293	108,395
<i>Contributions:</i>		
Sustentation	\$55,986	\$55,120
Evangelistic .....	..	44,166
Invalid fund	9,918	12,117
Foreign missions	28,958	32,785
Education	51,360	54,868
Publication	15,803	8,343
Tuscaloosa Institute .....	..	5,789
Presbyterial .....	..	14,305
Pastors' salaries	384,164	665,724
Congregational	396,641	553,155
Miscellaneous	68,631	116,493
Total	\$1,111,461	\$1,612,865

The total receipts of the Committee of Education had been \$17,182. One hundred and sixty-seven candidates had been aided in the sum of \$16,037.

The Clergy's Friendly Society, managing the Relief fund, returned its total assets at \$44,648.

The Committee of Publication reported an excess of assets of \$76,169. It had received \$7,784 on collection account, and \$2,627 from royalties, and its liabilities were "reduced to a minimum." Its sales had amounted to \$26,439; and

it had expended during the year for benevolent work \$8,402.

The Tuscaloosa Institute for the instruction of colored ministers returned 28 students, of whom 18 were Presbyterians, 7 Methodists, and 3 Baptists. They were described as men of fair ability. The institute requires as qualifications for admission, only capacity to read intelligently and write legibly, and an acquaintance with the four elementary rules of arithmetic, but not all the candidates sent by presbyteries had even these qualifications.

The entire resources of the Committee of Home Missions for the year were \$72,099; the amount disbursed by the treasurer was \$66,229. The sum of \$3,454 had been received for church erection, and \$2,050 had been loaned to ten congregations. Out of \$19,198 which had come into the hands of the treasurer on account of the Evangelistic fund, \$13,355 had been paid to the support of fifty-six ministers as evangelists. The amount of the Invalid fund had been \$15,257, from which \$13,926 had been paid in aid of 138 beneficiaries. The resources of the Colored Evangelistic fund were returned at \$7,413. The fund had been applied to the support of Tuscaloosa Institute, in aid of the erection of four church buildings, and to the partial support of 2 white ministers and 31 colored ministers, licentiates, and candidates working among the colored people.

Union Theological Seminary had been attended by 66 students; \$32,283 had been obtained toward the endowment of a fifth professorship. Columbia Theological Seminary had invested funds amounting to \$235,000, from which an income of \$13,000 was derived.

The Committee of Foreign Missions had received from all sources \$96,054, \$8,014 more than it had received in any previous year. Nine missionaries had been added to the force in the field, and it was now employing 72 missionaries and 56 native helpers. The missions were in Mexico, Brazil, China, Japan, Greece, and Italy, and among the American Indians.

The General Assembly met at Chattanooga, Tenn., May 16. The Rev. Dr. H. G. Hill, of North Carolina, was chosen moderator. The report of the joint committee of this Church and the Northern Presbyterian Church on co-operation, with the plan of co-operation embodied in it, was adopted in the same form as it was adopted by the Northern General Assembly. A further decision was reached respecting the right of ministers to discuss the doctrine of evolution and the action of the General Assembly concerning it, as follows: The Presbytery of Charleston, of the Synod of South Carolina, had passed a resolution declaring the views that had been expressed by Dr. Woodrow (see discussions of this case in previous volumes of the "Annual Cyclopædia") concerning the origin of Adam's body (they being substantially that it was derived by evolution from the body of animals), to be contrary to the standards of the Church, and that the decision of the General Assembly upon the subject was conclusive, and all further discussion of it should cease. The Synod of South Carolina, reviewing the records of the presbytery, had declared this action to be unwise, irregular, and unconstitutional, and an infringement

of the rights of free thought and free speech. The subject came before the Assembly on the review of the minutes of the Synod. After discussion the Assembly passed a minute disapproving the action of the Synod, "together with the reasons assigned therefor, inasmuch as it appears to the General Assembly, from our inspection of the records, that the action of the Charleston Presbytery was not intended to limit either the right of private judgment or the constitutional right of proper discussion." A paper looking to "a more aggressive work" was adopted, in which the presbyteries were recommended to assign each vacant charge within their respective bounds to some minister, whose duty it shall be to take charge of such congregation, supply it with week-day preaching, moderate the session, and take spiritual oversight of it until a minister can be regularly employed. A paper was adopted approving of the signing by members of the Church of a petition to Congress asking that Sunday work be stopped in the Post-Office, the army, and interstate commerce; and recommending members to abstain from traveling on the Sabbath. A draft of a directory for worship was presented for consideration, and was sent down to the presbyteries. It was resolved to undertake a mission in the Congo.

III. United Presbyterian Church of North America.—The statistical reports of this Church, presented to the General Assembly in May, showed that it had 753 ministers, 243 of whom are "without charge," 903 congregations, and 101,858 communicants. The whole amount of contributions was \$1,110,853; of which \$108,585 were for foreign missions, \$60,286 for home missions, \$18,084 for ministerial relief, \$50,307 for church extension, and \$49,296 for the Women's General Missionary Society.

The General Assembly met at Springfield, Ohio, May 22. The Rev. E. S. McKittrick was chosen moderator. The Quarter-Centennial Commission reported that the amount raised toward the fund under its charge was about \$400,000. A report was submitted from the Permanent Committee on Reform, naming the principal reforms which were sought to be accomplished. They include the suppression of impure literature; the preservation of personal purity; the maintenance of the Sabbath and its establishment on a Scriptural basis: the amendment of the laws relating to marriage and divorce, so as to make them conformable to the divine standard: the suppression of evils resulting from the traffic in intoxicating drink by securing its prohibition; resistance to the encroachments made by secret orders on individual and public rights; settlement of national difficulties by arbitration and the abolition of war and the establishment of Christian institutions, laws, and usages on a constitutional basis. The Assembly gave its approval to the proposed amendment to the Constitution of Pennsylvania prohibiting the traffic in intoxicating liquors, and advised members of the Church in that State to work and vote for it. It also directed a pastoral letter, embodying its sentiments on the subject, to be addressed to the United Presbyterian organization in Pennsylvania. In answer to memorials asking that churches having organs be refused aid from the boards, the Assembly replied that it was in-

expedient to change the rule adopted by the General Assembly of two years before, under which each congregation was permitted to determine its own course in the use of instrumental music in worship. An overture was ordered sent down to the presbyteries prohibiting the licensing of ministerial students who use tobacco, and disqualifying members using it in any form from eligibility to the office of ruling elder.

IV. Reformed Presbyterian Church, United States of America (Synod).—The following is a summary of the statistics of this Church as they were presented to the Synod in June, 1889: Number of presbyteries (including one in New Brunswick and Nova Scotia), 11; of congregations, 124; of ministers, 124; of communicants, 10,817; of persons attending Sabbath-schools, 13,508; of baptisms during the year, 478. Amount of contributions: For foreign missions, \$15,467; for home missions, \$5,697; for the Southern Mission, \$5,729; for the Chinese Mission, \$1,801; for the Theological Seminary, \$6,275; for education, \$2,607; for Sustentation, \$2,081; for church erection, \$24,171; for pastor's salaries, \$80,883; for national reform, \$6,480; total contributions, including miscellaneous, \$215,701.

The Synod's Board of Trustees had received bequests amounting to \$952.50 for the Endowment fund of the Board of Missions, and \$1,452.50 for the Theological Seminary Endowment fund; with \$3,882.50 of additional subscriptions for increasing the latter fund. The whole amount of endowment, held by the board for investment purposes was \$200,634, and it had increased \$16,057 during the year.

The Latakiah Mission in Syria, with a station also in Cyprus, returned 9 missionaries and 185 native members; 25 schools attended by 735 pupils; 18 Sabbath-schools, with 643 pupils; and 13 baptisms during the year. The Tarsus Mission in Asia Minor, closing its sixth year, employed 13 teachers and 3 helpers, and returned about 245 pupils and an increase of 25 members.

The Freedmen's School, Knox Academy, Selma, Ala., returned an average for the year of 330 pupils, the highest enrollment having been 381. The Chinese mission at Oakland, Cal., returned 10 Christian Chinese. An Indian mission has been begun at Fort Sill, in the Indian Territory.

The Synod met at Belle Center, Ohio, June 5. The Rev. R. M. Sommerville was chosen moderator. The committee appointed to confer with a Committee of the General Synod of the Reformed Presbyterian Church reported that the committees had held a joint meeting at Beaver Falls, Pa., Nov. 13, 1888, at which a paper was adopted showing that both the churches agreed entirely in all the doctrines of grace and salvation, in all the practices of worship, and in all the principles of their respective professions; and that they differed in only one point, viz., the practical application of the principle of Christ's rulership over the nations—the General Synod allowing its members to incorporate by voting with the present existing Government, and the Synod refusing its members this privilege “while the nation fails to own Christ.” Conferences being believed to be beneficial, the committee recommended a continuance of the negotiations. The report of the Committee on

National Reform asserted the impossibility of the Church co-operating with the civil government or with other bodies on a purely secular basis, and insisted that the conviction be cherished “that it is a great sin and scandal against the Christian religion for Christians to be in sworn allegiance to a constitution of civil government that makes the will of man supreme.” The Synod resolved that identification with Christless civil power is none the less sinful because of the interest taken in the reform by numerous Christians; and that its testimony must be explicit and consistent, “and we must make others understand that we are in no sense identified with political parties.” A committee appointed to secure signatures to petitions to Congress for national reform was endeavoring to secure the presentation to the next Congress of a petition bearing the name of every communicant in the Church. The Synod resolved to co-operate with the American Sabbath Union to preserve the American Sabbath as a day of rest and worship. It resolved to give “to all Scriptural measures, moral, political, or legislative,” for the suppression of the liquor traffic, “all that support and advocacy which is consistent with our position of political dissent.” The following resolution, adopted by the Synod, further defines its position in political dissent.

“There are certain acts that do not involve sinful relations to an irresponsible constitution of government, and which are not acts of incorporation with the Government, which this Church has always recognized the right of her members to perform. The simple act of voting for amendments to State Constitutions belongs to the class of political acts which are not inconsistent with the principles of the Reformed Presbyterian Church, or with her position of political dissent.” A committee on the preparation of tracts on the relation of civil government to our Lord Jesus Christ, and on the reasons for the Church's political dissent from the Government of the nation, reported a list of topics which had been assigned to as many members of the Synod for the preparation of discussions upon them.

V. Reformed Presbyterian Church in North America (General Synod).—This body includes forty-six churches, with the mission in India, forty-eight ministers, and two licentiates. As reported to the General Synod, the available resources, including the balance from the previous year, of the Disabled Ministers' fund had been \$311; of the Educational fund, \$595; of the Church Extension fund, \$4,733; of the Sustentation fund, \$9,072; and of the Theological Seminary fund, \$8,046. The permanent funds of the Theological Seminary amounted to \$54,225. The receipts of the Domestic Mission Board were \$4,044. This sum included legacies amounting to \$2,100, which were funded in the Sustentation fund. A growing lack of preachers in many of the vacant congregations was complained of. The Board of Foreign Missions had received \$3,225, which, added to the balance from the preceding year, made its entire available resources \$11,655. The mission in Roorkee, Northwestern Provinces of India, had been in successful operation, with eight stations and an orphanage, and returned eighteen baptisms during the year.

The General Synod met in Tarentum, Penn., May 15. The Rev. H. H. Brownell, of Iowa, was chosen moderator. The report of the Committee on Union with the Synod of the Reformed Presbyterian Church, reciting the proceedings and conclusions of the joint committee, was presented and adopted, and provision was made for a meeting on the call of the committees of the two bodies. The report on the Sabbath condemned the session of Congress through the greater part of the Sunday preceding March 4, 1889, as a flagrant violation of the holy day, protested against the continuance of the mail service, and uttered testimony against excursions and unnecessary business and serving of food on the Lord's Day. The Synod declared itself ready for union with other Christian bodies on the basis of reformation principles as embodied in the "Westminster Confession and Catechisms; Presbyterian Form of Government," a testimony "including truths maintained and errors condemned by the testimonies of the Reformed and United Presbyterian Churches of North America"; and "a directory for worship which shall conform and limit the service of God's house to the requirements of his word, it being agreed that such directory shall exclude all human composition and mechanical instrumentation from the service of praise."

VI. Cumberland Presbyterian Church.—

The General Assembly of the Cumberland Presbyterian Church met in Kansas City, Mo., May 16. The Rev. J. W. Hubbard was chosen moderator. The report of the Board of Education showed that the receipts had been larger than those for any previous year. Forty-eight young ministers in the Church schools had been assisted by it. A committee appointed in 1887 respecting the form in which title to property acquired for church or educational purposes should be taken, advised that the deeds to such property be made to the General Assembly's Board of Trustees. A corresponding delegate from the Cumberland Presbyterian Church, colored, addressed the Assembly concerning the condition and needs of that body. Its needs were for an educated ministry, and for the appreciation of that necessity among the people. "The times," he said, "are not as they once were. An uneducated negro can no longer preach effectively among the negroes. The negro population of the South is being educated." The Board of Missions reported concerning the condition of domestic missions; of missions to the Indians, including a school among the Cherokees; and of missions in Japan and Mexico. Fifty thousand dollars was designated as the sum to be asked from the Church for the purposes of Home and Foreign Missions for the ensuing year. Provision was made for assisting the Cumberland Presbyterian school for colored people at Bowling Green, Ky., the property rights of which are vested in the General Assembly, and for erecting new buildings for it. The Assembly decided that marriage by a candidate for the ministry or licentiate after beginning his candidacy should operate as a bar to his receiving aid from the Board of Education. Aid was also refused to candidates using tobacco. A report on temperance was adopted, pledging the Assembly to a decided advocacy of the principle of prohibition,

but refusing to indorse any political party. Five persons were appointed to represent the Assembly in the American Sabbath Union; State conventions in behalf of Sabbath observance were approved; each synod was advised to appoint a committee to co-operate with other religious bodies in arranging for such conventions; and sympathy was expressed with the petition to Congress for a law against Sunday work so far as the jurisdiction of the General Government extends. A standing committee on church property was instituted for the purpose of gathering information and statistics throughout the bounds of the Church regarding vacant church property; and the synods and presbyteries were advised to form similar committees in aid of the Assembly's committee and to secure accurate, detailed information of the condition of such properties within their several jurisdictions.

VII. Presbyterian Church in Canada.—

The following is a summary of the statistics of this Church as they were reported to the General Assembly in June: Number of churches, 1,837; of sittings, 435,177; of families, 79,678; of communicants, 152,013, showing an increase during the year of 6,373; of baptisms during the year, 985 of adults and 10,090 of infants; received on profession of faith, 11,832; number of manse, 541; of attendants on Sabbath-school and Bible-class, 119,985, with 20,022 teachers. Amount of contributions: For ministerial support, \$744,672; for churches and manse, \$501,298; for congregational purposes, \$1,555,867; for colleges, \$112,897; for home missions, \$96,026; for foreign missions, \$77,021; for all purposes, \$1,942,723.

The work of the Board of Home Missions is divided into two departments, viz., home mission work proper, in districts not able to maintain a settled pastor; and augmentation work, for the maintenance of a fixed minimum in pastoral salaries (\$750 in the East and \$900 in the Northwest, with a free manse in both cases). The whole number of mission stations was about 850, with which were connected 13,000 communicants and about 40,000 attendants of Sabbath-school. In these stations, \$45,000 had been raised for self-support. One hundred and eighty-one congregations were helped from the augmentation fund.

The receipts for French evangelization had been \$44,913. The committee had maintained, among the French-speaking population, chiefly in the Province of Quebec, 25 mission churches, with 89 preaching stations—in which 200 additions by profession of faith were returned—33 mission schools, in which 912 pupils were enrolled; and a boarding and high school at Point aux Trembles, with 145 pupils. A building had been bought in Ottawa for a school for young women. Nearly 80 annuitants had been aided from the Aged and Infirm Ministers' fund, with an average sum of \$175 each. Seventy-five candidates had been graduated from the five theological colleges. The Board of Foreign Missions had expended \$85,016 on its Foreign work in China, Central India, Trinidad, Demarara, and the New Hebrides islands. Seven ordained ministers and seven women missionaries had been added to its force. Five of these, who had been appointed to Honan, China, were supported by individual congregations or members

of congregations. The board was directed by the General Assembly to consider propositions for establishing missions to the Jews and among the Chinese in British Columbia. Resolutions were passed expressing "emphatic condemnation" of the act passed by the Province of Quebec, incorporating the Order of the Society of Jesus, particularly on the grounds "that the body thus incorporated is an alien one, and under ban throughout the empire," and that its influence "is hurtful to the public welfare, and even dangerous to the public peace"; expressing like emphatic condemnation of the Jesuits' Estates' act passed more recently in the same province, on the ground that "besides carrying with it an unconstitutional and dangerous recognition of the authority of the Pope, and a consequent invasion of the supremacy of the Queen, it diverts public funds and funds held in trust for educational purposes to ecclesiastical and sectarian uses, and is subversive of well-understood civil and religious right." The moderator was authorized to sign a petition on behalf of the General Assembly to the Governor-General in Council asking for the disallowance of the Jesuit Estates' act; the support of the Assembly was pledged to measures for obtaining an authoritative expression as to the constitutionality of the two acts in question; and a committee was appointed, acting by itself or in concert with other bodies, "to guard the interests of civil and religious liberty." Liberty of conscience was accorded to members of the Church with reference to marriage with a deceased wife's sister. The committee on union with other churches reported upon conferences that had been held during the year with committees of the Episcopal and Methodist churches. A revised edition of the "Book of Forms and Rules of Procedure" was adopted for publication. Previous declarations were reiterated in favor of teaching in the public schools the fundamental historical facts and doctrines of the Bible, with provision of a conscience clause for the relief of objectors and permission to trustees to dispense with such instruction when it deemed expedient. The conviction of the Assembly was declared that the general liquor traffic is contrary to the word of God; that prohibition is the proper goal of all temperance legislation; and that sympathy with Prohibition should be considered an essential qualification in members of Parliament.

VIII. The Kirk of Scotland.—The General Assembly of the Church of Scotland met in Edinburgh, May 23. The Rev. Dr. Gloag, of Galashiels, was chosen moderator.

The report of the votes of the presbyteries upon the overture sent down by the previous Assembly respecting the subscription of office-bearers showed that out of 84 presbyteries, 64 had pronounced in favor of the overture and 16 against it, while 4 had cast qualified votes. The overture was made a standing law of the Church. It requires only a general subscription to the Confession as a whole, and relieves the subscriber of "everything that does not enter into the substance of the Confession." The Committee on Foreign Missions reported that the number of baptized persons in India had increased during the year from 3,000 to 3,700. The financial condition of the missions

was good. The relations of the Assembly with the Synod of the Presbyterian Church in England in connection with the Church of Scotland, were brought to notice by a motion for allowing delegates from that Synod to take seats in the Assembly without voting—which was denied. A debate took place on the failure of the Church to draw large masses of the people into its congregations, and the means of remedying it. A committee was appointed to consider and report as to the extent to which divinity students might with propriety be allowed to take part in the public worship of the Church. A motion to delete the Apostles' Creed from the services of worship was lost, it receiving only two votes.

The Presbyterian churches in Canada, in connection with the Church of Scotland, include those churches and parts of churches connected with the Church of that name that declined to go into the union from which the Presbyterian Church in Canada has resulted. The Synod of Pictou, N. S., exclusive of the very large parish of Prince Edward Island and one other, from which reports were not received, returns 1,960 families, with 1,957 communicants; payments for stipends, \$9,020; and contributions to the schemes of the Church, \$2,471. In the provinces of Montreal and Quebec there are 21 churches of this connection.

IX. Free Church of Scotland.—The General Assembly met in Edinburgh, May 23. The Rev. Dr. John Laird was chosen moderator. The feature of the business concerning which most interest was felt was the election of a Professor of New Testament Exegesis, in the Free Church College of Edinburgh. The principal candidate was the Rev. Marcus Dods, D. D., a theologian, whose views upon controverted questions respecting the inspiration of the Scriptures were regarded as "broad" in the most liberal sense, and who had not hesitated to utter them explicitly. An address which he had delivered at the meeting of the Presbyterian Alliance in London, in 1888, attracted much attention at the time for the boldness with which those views were enunciated. The bearing of Dr. Dods's views and his fitness in other respects for the professorship were fully discussed in the Assembly, after which he was elected, receiving 383 votes to 280 votes cast for two other candidates. An informal meeting of the members of the Assembly opposed to the selection of Dr. Dods was held during the sessions of the Assembly, at which the subject of forming an association for the maintenance of the orthodox views was discussed. Several overtures concerning a revision of the Confession of Faith came before the Assembly. Motions were made in various forms that the subject be passed from as not called for; that a committee be appointed to consider it; that the proposers of the overtures should be called upon to specify what doctrines are opposed to the Scripture; and that whatever might happen, the Calvinistic element should not be tampered with. A motion to appoint a committee to inquire into the condition of opinion in the Church regarding the Confession of Faith, and to consider what steps should be taken, was adopted by a vote of 413 to 130. The Assembly resolved to invite all ministers and members of the Free Church to consider the sub-

ject of union with the United Presbyterians, and to promote local and general co-operation between the two Churches. The report of the Committee on Church and state defined the position of the Free Church to be that of holding that establishment in Scotland is inexpedient, unjust, and wrong, and should be terminated as speedily as possible. The matter had got past discussion, and had entered into the region of practical politics. There were apparently an ever-increasing number of Established Churchmen who saw the situation and confessed that their position was anomalous and indefensible, and would not lend their support to keep their Church in it. The number of the minority in the Free Assembly supporting the establishment principle was also diminishing. A great change over this question had taken place within a year in the Highlands, and the principle of disestablishment was now predominant in every constituency in the North. The Committee on Temperance represented that the reports from presbyteries had been more numerous than in any former year, and showed that both in congregations and presbyteries Gospel temperance work was now recognized as an important department of Christian effort.

X. United Presbyterian Church of Scotland.—The statistical returns of this Church, presented to the Synod in May, showed that the whole number of members was 182,963, or 793 more than in 1888. The gain was above the average rate of increase for the last ten years.

The Synod met in Edinburgh in May. The Rev. Dr. Drummond was chosen moderator.

The third jubilee of the secession in Glasgow and the west of Scotland was celebrated in Glasgow in December, 1888, at a meeting which was attended by representatives of all the denominations except the Established Church. Historical papers were read by Dr. Andrew Thomson on "The Origin of the Secession Church," and by Principal Cairns on "The Religious History of Glasgow." In an address on "The Recent Movements and Present Position of the United Presbyterian Church" the Rev. A. B. McEwen claimed that the Church had moved forward in its creed, its worship, and its organization. While there were few doctrines held forty years before which they would be inclined to discuss or deny, there had been a change. Doctrines once prominent had fallen into the background, and other truths were now given a foremost place. Their Church was the first Presbyterian Church to discuss the use of instrumental music, and in their case the transition had been made with very little friction. The work of the Church abroad was presented by Dr. Corbett; Principal Rainy spoke of "The Influence of the Secession on the Religious Life of Scotland."

XI. The Presbyterian Church in Ireland.—The income of this Church is derived from the proceeds of investments, gifts, and bequests, and congregational contributions. The total amount for 1888 is given in the "Blue Book" of the General Assembly as £214,683, or £9,577 more than in the previous year. The number of children in Sunday-schools was 105,960. The clerk of the General Assembly made return of the number of enrolled clergymen as 668, the largest number reported in the history of the Church.

From the foreign mission fields were returned 4 missionaries and their wives in China and in India, 353 communicants, 1,653 baptized members, and a Christian community of 2,194 persons, with 26 schools for boys and 18 for girls. Mission churches were also sustained in continental Europe.

The General Assembly met at Belfast, June 3. The Rev. William Clarke was chosen moderator. The General Assembly having been formed in July, 1840, by the union of the Synod of Ulster and the Secession Synod, the year 1890 would be its fiftieth or jubilee year. A committee was appointed to make arrangements for the due celebration of the festival on the 10th of July, and for holding a "jubilee meeting" of the Assembly. The delegates that represented the Assembly in the General Council of the Alliance of Reformed Churches holding the Presbyterian System, held in London in July, 1888, made a report concerning the proceedings of that body, of one feature of which it was remarked:

The only topic eliciting diversity of opinion was one phase of the intellectual tendencies of our day in their bearing on faith. One of the delegates read a paper, in which he ascribed a large amount of unbelief of our age to the extent of the demands made upon the faith of men as a condition of salvation. Among these demands the writer specified the doctrine of a plenary verbal inspiration, involving the doctrine of the infallibility of Scripture. He claimed that a Christian creed should not demand anything beyond what he alleged Christ required, viz., that men should follow him and accept him as the true Ruler of their lives. We have no right, he maintained, to ask more, or to require that men should accept a number of propositions about him. The Council was careful to vindicate itself before the churches of Christendom by setting apart an hour and a half for the criticism of this paper, and the delegates took part in its review and condemnation.

A proposition was considered for forming a United Presbytery in China, to consist of the missionaries of this Church and of the United Presbyterian Church of Scotland.

XII. Presbyterian Church in England.—The statistical report to the Synod of 1889 gave the number of congregations as 287, and the number of members as 64,054, against 62,566 in 1888. The total income had been £210,376. It was represented in the Synod that while ten years previously the value of the entire property of the Church was £1,000,000, it was now £1,500,000, and that within the same period the aggregate debt had decreased from £121,000 to £94,000. The year's income for missions had been £17,000. The Church had in China 28 ordained European missionaries and 16 woman missionaries, with many native evangelists. Eight native pastors were supported by their own congregations. The Church in China was becoming self-supporting, and sending out missionaries.

The Synod met in London, April 29. The Rev. Alexander McLeod, D.D., presided as moderator. The Committee on the Confession of Faith which had been adopted in the Synod of the previous year for submission to the presbyteries (see "Annual Cyclopædia" for 1888), reported back the document as it had been revised by it in the light of the amendments suggested by the presbyteries. The most important differences in view were in respect to the wording to be given to Article XIX, treating of Holy

Scripture. Instead of reading that the revelation has been "so far as needful committed to writing by men inspired of the Holy Spirit, so that the word of God is now contained in the Holy Scriptures," some would have it assert that the Bible *is* the word of God. The report was received, while final judgment on the articles was reserved for a year. The committee was re-appointed, with instructions to consider any further suggestions that might reach it, and to report to the next Synod. It was also directed to prepare an appendix, setting forth the mind of the Church on matters of ritual and practice referred to in the standards, but not embraced in the articles. A report of the Committee on the Instruction of Youth dealt especially with the diplomas and medals gained in examinations in the prescribed subjects by pupils and teachers in Sunday-schools. A general approval, reserving final judgment, was expressed of the draft of the revised directory for public worship, and the committee was authorized to put copies in circulation. The difference between a directory, such as the committee had drafted, and a liturgy, was explained in the discussion on the subject. In reply to a letter from the Archbishop of Canterbury communicating the resolutions on reunion, adopted by the Lambeth Conference of 1888 (see "Annual Cyclopædia" for 1888, article "Anglican Churches"), the moderator of the Synod had informed the primate that his brethren would appreciate the fraternal sentiments expressed by the Anglican bishops, and would bring the matter before the Church. A committee was appointed to consider whether it was expedient to reply further and more fully to the archbishop's letter. To a fraternal letter from the Assembly of the Irish Presbyterian Church containing sentiments in opposition to "home rule," the clerk was ordered to reply, acknowledging the letter in a brotherly spirit, without reference to politics. It was resolved to petition Parliament in favor of Sunday closing of public houses, and against the opium traffic.

XIII. Welsh Calvinistic Methodists.—The General Assembly of the Welsh Calvinistic Methodists met at Llangallen, May 7. The Rev. Griffiths Parry presided as moderator, and the Rev. Daniel Rowlands was chosen moderator for 1890. The retiring moderator, Rev. Owen Thomas, D. D., represented in his opening address that the connection had 1,410 chapels and preaching stations, 1,500 Sunday-schools, with nearly 200,000 pupils, 110,000 communicants, and 300,000 hearers. Another estimate gives 130,000 communicants and 281,000 adherents. The Foreign Missionary report showed that there were 11 missionaries and 24 native preachers in India, with 1,595 members and 8,080 members of congregations. A proposition to withdraw from Brittany was not sustained. A committee was appointed to consider what changes beneficial to the connection might be effected in the constitution of the Assembly. The erection of a manse in connection with each church was recommended.

PROTESTANT EPISCOPAL CHURCH IN THE UNITED STATES. This Church, whose ecclesiastical position is for the most part well understood, has entered upon the second century of its existence separate from the Church

of England, of which it is properly the successor in America. Its conservative character and its uniform adherence to law and order, based on the ancient creeds and liturgies, seem to indicate for it steady and healthful growth. The present year, being that of the meeting of the General Convention, is more than ordinarily interesting and important to Episcopalians. Efforts to bring about a satisfactory and solid reunion among Protestant Christians have been much discussed, and an excellent spirit has been manifested by the chief denominations in trying to reach a conclusion; but, as yet, no practical result has been attained. The question as to the "historic episcopate," and in how far that is necessary to constitute a valid ministry after the apostolic model, is really the crucial one. Until this is settled, probably no actual reunion will or can be reached. The years between 1886 and 1889 have been a time of trial of the proposed changes in the prayer-book. The sources of information in preparing this article are the "Journal of the General Convention of 1889," Pott's "Church Almanac," and Whittaker's "Protestant Episcopal Almanac." The following table presents a summary of statistics of Church progress from 1886 to 1889:

Number of dioceses	51
Number of missionary jurisdictions	14
Bishops ..	69
Candidates for orders	431
Priests	3,632
Deacons	320
Whole number of clergy	4,021
Lay readers	1,396
Number of parishes	3,084
Chapels and missions	1,983
Corner-stones laid	170
Churches consecrated	274
Free churches and chapels	1,825
Rectories	1,458
Families	156,110
Baptisms, infant	138,700
Baptisms, adult	32,861
Confirmed, number of	112,741
Communicants	488,785
Marriages	46,643
Burials	91,013
Sunday-school teachers	40,114
Sunday-school scholars	383,804
Academies	149
Colleges	15
Divinity schools	19
Orphanages	40
Homes	60
Hospitals	57
Parish schools	126
Parish-school teachers	586
Parish-school pupils	10,281
Other institutions	22
Offerings for diocesan missions	\$663,864 65
Offerings for domestic missions	\$734,220 26
Offerings for foreign missions	\$355,818 43
Communion alms	\$876,358 96
Total offerings for religious purposes	\$33,316,514 44

PROGRESS BY DIOCESES.

DIOCESES.	Clergy.	Parishes.	Baptisms.	Confirmations.	Communicants.
Alabama	44	59	1,444	1,231	5,409
Albany	126	116	5,190	3,403	15,619
Arkansas	19	21	662	506	1,965
California	95	44	3,271	1,866	7,466
Central New York ..	108	107	4,520	3,293	14,809
Central Pennsylvania.	108	92	4,225	2,961	9,765
Chicago	77	51	4,422	2,960	12,452
Colorado	33	12	1,228	854	2,711
Connecticut	195	145	6,034	3,874	24,906
Delaware	32	30	812	496	2,416
East Carolina	29	40	1,048	610	2,968
Easton	37	38	1,279	562	2,969

PROGRESS BY DIOCESES—(Continued).

DIOCESES.	Clergy.	Par- ishes.	Bap- tisms.	Con- firmations.	Communi- cants.
Florida	49	22	1,748	1,076	3,498
Pond du Lac	30	18	1,069	711	3,052
Georgia	41	38	1,441	1,197	5,332
Indiana	40	39	1,765	1,399	5,554
Iowa	52	50	2,104	1,482	6,007
Kansas	40	27	809	354	3,565
Kentucky	44	33	1,719	1,505	6,546
Long Island	111	75	7,793	4,706	20,791
Louisiana	36	42	1,751	1,324	4,641
Maine	24	22	1,026	588	2,988
Maryland	173	128	8,322	6,126	26,862
Massachusetts	186	133	8,658	5,193	25,879
Michigan	80	71	4,467	2,880	12,345
Milwaukee	60	37	1,975	1,549	6,094
Minnesota	91	74	3,527	2,611	9,415
Mississippi	31	35	1,000	841	2,682
Missouri	70	53	2,759	2,446	8,406
Nebraska	43	24	1,410	1,029	2,624
Newark	104	66	4,064	3,133	14,541
New Hampshire	84	20	965	721	2,729
New Jersey	105	76	4,644	2,719	11,340
New York	355	165	18,978	11,701	48,405
North Carolina	52	47	1,863	1,033	4,135
Ohio	65	72	3,020	2,001	8,342
Oregon	20	27	713	338	1,600
Pennsylvania	215	124	12,601	7,065	34,342
Pittsburg	68	60	8,561	2,638	8,814
Quincy	27	33	431	436	2,240
Rhode Island	51	45	3,081	1,627	9,102
South Carolina	46	55	1,437	1,152	4,431
Southern Ohio	44	47	1,335	1,466	7,572
Springfield	39	22	1,167	826	3,507
Tennessee	47	31	1,644	1,331	5,362
Texas	31	31	1,294	820	3,250
Vermont	33	41	932	737	3,978
Virginia	151	143	4,741	4,113	17,283
Western Michigan	29	23	1,377	904	3,874
Western New York	112	100	4,938	3,115	14,851
West Virginia	21	27	746	594	2,841
MISSIONARY JURIS- DICTIONS.					
North Dakota	15	..	423	239	713
Nevada and Utah	10	17	832	361	2,940
South Dakota	33	8	2,517	962	2,492
North Texas	14	12	477	323	1,739
West Texas	18	13	595	376	1,271
North California	21	..	890	445	1,021
New Mexico and Ari- zona	6	10	80	40	415
Montana	13	2	588	325	1,249
Washington	17	10	191	234	1,118
Wyoming and Idaho	21	..	599	324	1,412
West Africa	15	6	232	235	645
China	47	..	400	156	441
Japan	11	..	1,063	492	533
Total	4,021	3,084	171,561	112,741	488,785

GENERAL COMPARISON.

DATE.	Number of dioceses.	Number of clergy.	Increase in clergy.	Number of commu- nicants.	Increase in communi- cants.	Population of the United States.
			Per ct.		Per ct.	
1790	7	190	..	..	..	3,929,214
1800	8	210	10	11,978	..	5,308,483
1810	9	218	3	..	..	7,239,881
1820	13	331	50	..	..	9,633,822
1830	20	534	60	30,939	..	12,866,020
1840	25	1,039	100	55,427	75	17,069,453
1850	29	1,589	50	57,794	56	23,191,876
1860	33	2,156	30	146,583	66	31,443,821
1870	40	2,838	40	220,000	50	38,558,371
1880	48	3,432	21	344,789	56	50,152,866
1889	51	4,021	20	488,785	40	57,500,000

The General Convention.—This body, which under the constitution is the supreme legislature of the American Episcopal Church, meets triennially. In 1886 it met in Chicago. In 1889 it assembled in New York city, Oct. 2, and con-

tinued in session until Oct. 24 inclusive. There were sixty of the bishops present, and clerical and lay deputies from all the dioceses, and delegates from eleven missionary jurisdictions. The Convention consists of two houses, which hold sessions as distinct bodies, viz., the House of Bishops and the House of Clerical and Lay Deputies; but concurrent action is necessary to any valid legislation. In addition to regular business which requires attention, such as amendments to the constitution and canons, reports of standing and special committees, the state of the Church, education and progress, etc., the chief features of interest to Episcopalians in general this year were the reports and discussions on the revision of the prayer-book, the new hymnal, reunion of Protestant Christendom in America, change of name of the Episcopal Church, etc. The proceedings of the two houses, in respect to the important subject of "Liturgical Revision," are presented consecutively in "Supplementary Journals," covering nearly two hundred pages, and bound up with the "Journal of the General Convention" of 1889. Of the details of this revision, and of the numerous changes, additions, etc., in the Book of Common Prayer, we have not room here to speak, nor indeed is it necessary. The learned gentlemen occupied in this work were very earnest and diligent in the effort to reach a final settlement this year; but a strong minority report was presented, and considerable opposition manifested. The result was the adoption of nearly all the alterations, and a "Standard Prayer-Book" is accordingly to be made ready for adoption and use at the General Convention of 1892. A new "Hymnal" was proposed and met with favor, but it was judged best to recommit the book to an enlarged commission, who are to report in 1892.

Domestic Missions.—Sept. 1, 1888, to Sept. 1, 1889: Missionaries (12 missionary jurisdictions and 31 dioceses): Bishops, 12; other clergy (white, colored, Indian), 475; teachers, other helpers, etc., 105; total, 580. The financial condition was as follows:

Balance in hand, Sept. 1, 1888	\$39,082 14
Offerings	163,453 52
Legacies	52,652 65
Specials	34,376 85
Total	\$289,565 16

Expenditures (12 missionary jurisdictions and 31 dioceses, including Indians, etc.)	\$183,837 93
Specials	32,422 81
Office and other expenses	15,254 72
Balance at credit Sept. 1, 1889	50,050 20

Total

Foreign Missions.—Sept. 1, 1888, to Sept. 1, 1889: Missionary bishops, 4; other clergy (foreign and native), 66; teachers, helpers, etc., 234; total, 300. The financial condition was as follows:

Balance in hand, Sept. 1, 1888	\$53,000 00
Offerings	37,703 82
General fund for foreign missions	97,720 34
Legacies	9,942 63
Specials	14,657 31

Total	\$213,024 10
Expenditures on missionary work in Africa, China, Japan, Greece, Hayti, Mexico	\$141,628 69
Specials	18,300 81
Salaries, printing, etc.	17,275 51
Balance at credit Sept. 1, 1889	35,819 09

Total

The Woman's Auxiliary to the Board of Missions renders aid in all the departments by means of parochial, city, county, and diocesan associations of ladies, formed for the purpose of raising money, forwarding boxes to missionaries and mission stations, etc.

Money raised for domestic, foreign, Indian, freed-men, and other missions, 1888, 1889	\$119,379 98
Boxes for the same (3,456 in number), value...	184,593 15

Total.....	\$303,973 13
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The American Church Missionary Society (also auxiliary to the Board of Missions) has employed during the year in 22 dioceses and missionary jurisdictions, 46 missionaries. It has also in the foreign field 1 clergyman and 4 lay helpers in Cuba, and 2 clergymen in Brazil. The financial condition was as follows:

Receipts for domestic missions	\$39,652 58
Receipts for foreign missions.....	4,997 05

Total	\$44,649 63
Specials (\$30,000 being for Colorado, Kansas, and Texas)	\$44,561 53
Balance, Sept. 1, 1888	31,373 33

Total.....	\$121,054 49
The society has also in securities, property, etc.	\$145,250 00

The American Church Building-Fund Commission, established in 1880, is doing good and efficient work. The trustees in charge keep steadily in view the raising the fund to \$1,000,000, as originally proposed, so as to enable the commission to aid in the important duty of furthering the extension of the Church by means of loans and gifts to struggling parishes. From various causes the increase of the fund has advanced but slowly. It now stands at \$176,786.35. During three years (1886-1889), loans have been made to 77 churches, in different parts of the United States, in sums from \$300 to \$1,000, with several as large as \$3,000 and \$4,000, amounting in all to nearly \$90,000.

The Society for Promoting Christianity among the Jews (also auxiliary to the Board of Missions) reports steady and encouraging progress. The society has missionaries at work in ten of the large cities. There are four missionary day schools, and ten other schools. The organized work by the parochial clergy extends into almost every diocese and missionary jurisdiction of the Church. Of new publications 57,000 copies have been issued, being a large increase over preceding years. Former publications have also been largely distributed, and the Holy Scriptures and the prayer-book have been circulated in English, Hebrew, German, and other languages.

Contributions, specials, etc. (Sept. 1, 1888, to Sept. 1, 1889)	\$12,963 03
Legacy.....	1,000 00
Balance from old account	6,764 66

Total..	\$20,732 69
Expenditures for schools, salaries, publications, etc.	\$11,278 43
Real-estate account	1,153 25
Balance to new account	8,296 01

Total.....	\$20,732 69
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General Condition of Church Affairs.—Since the General Convention of 1886, ten of the bishops have died, viz., Bishop H. Potter, of New York; Bishop W. M. Green, of Mississippi; Bishop A. Lee, of Delaware; Bishop W. B.

Stevens, of Pennsylvania; Bishop R. W. B. Elliot, of Western Texas; Bishop G. K. Dunlop, of New Mexico and Arizona; Bishop J. H. H. Brown, of Fond du Lac; Bishop S. S. Harris, of Michigan; Bishop E. R. Welles, of Milwaukee; and Bishop T. H. Vail, of Kansas. One of the missionary bishops, W. F. Adams, D. D., who resigned his jurisdiction in 1876, was elected to and accepted the bishopric of Easton in 1887. Eleven out of the ranks of the presbyters have been consecrated bishops, viz., E. S. Thomas, D. D., Assistant Bishop of Kansas; E. Talbot, D. D., Missionary Bishop of Wyoming and Idaho; J. S. Johnston, D. D., Missionary Bishop of Western Texas; A. Leonard, D. D., Missionary Bishop of Nevada and Utah; L. Coleman, D. D., Bishop of Delaware; J. M. Kendrick, D. D., Missionary Bishop of New Mexico and Arizona; B. Vincent, D. D., Assistant Bishop of Southern Ohio; C. F. Knight, D. D., Bishop of Milwaukee; C. C. Grafton, D. D., Bishop of Fond du Lac; W. A. Leonard, D. D., Assistant Bishop of Ohio; and T. F. Davies, D. D., Bishop of Michigan.

The Committee of the House of Deputies on the State of the Church call attention to numerous matters of interest and importance. They note the gratifying increase in baptisms, confirmations, communicants, clergy, and candidates for orders, and in offerings for Church work and support, varying from 10 to 25 per cent., during the last three years. In regard to increase of the ministry the appeal is again urged that all lawful and proper measures should be used to induce young men of not only character and ability, but also possessed of worldly means to offer themselves for the Master's service in the honorable work of the ministry. "The Master's call for laborers is addressed equally to the rich and to the poor, and the young man of wealth has a responsibility to meet and a duty to discharge and a privilege to enjoy, as well as his poorer brother. Surely parents and sponsors who are themselves devout Christian people are sadly remiss if they fail to keep before the minds of their sons and godsons the claims of the sacred ministry." The zeal and devotion of the laity are highly commended in the several agencies employed by them in the good cause, such as the Brotherhood of St. Andrew, the Church Temperance Society, the White Cross Society, the Girls' Friendly Society, and the like. A much needed warning is held up against allowing the Sunday-school to usurp the place of the pastor, who is charged equally with feeding the lambs as well as the sheep of his flock. The committee further lament the inadequate provision for the maintenance of the clergy, and the lack of a general pension fund for their support when age and infirmity compel them to retire from active duty. The committee feel it necessary, in conclusion, to say "a word or two as to the spirit which pervades the Church to-day with reference to Christian unity. God is guiding us. May we recognize his guidance! May we wait with patience! May we work in faith! May we give ourselves unto prayer! Great things are in store for us. 'That they all may be one, as Thou, Father, art in me, and I in thee, that they all may be one in us!' It is the supplication of our blessed Redeemer. The answer will surely come. The Lord hasten it in his time!"

Q

QUEBEC, PROVINCE OF. Finances.—The Provincial Treasurer made his budget speech on Feb. 19. The ordinary receipts for the fiscal year ending June 30, 1888, were \$3,738,228.39, and the ordinary expenses \$3,365,032.36. The receipts from all sources, including the 1888 loan of \$3,378,332.50 and a temporary loan of \$400,000, amounted to \$7,639,076.11, and the expenditure, including ordinary expenses, construction of new Parliament buildings and court-houses, railway subsidies, repayment of temporary loans, etc., to \$6,216,743.25.

The Jesuit-Estates Settlement.—The agitation for disallowance of the Jesuit-Estates Act of 1888, referred to in the "Annual Cyclopædia" for that year, was continued until Aug. 8, 1889, when the period for disallowance expired, the Federal Government persistently refusing to interfere, notwithstanding the numerous petitions presented to the Governor-General in Council asking for disallowance. The Governor-General was also asked to ignore the advice of his ministers, and disallow the act. The only attempt to bring the question of the constitutionality of the act before the courts of law was the personal petition of Hugh Graham, of Montreal, who presented a petition to the Governor-General in Council, asking that the question be referred to the Supreme Court of Canada under a clause of the Supreme Court act that provides for the reference to that court of any question upon which the Governor-General in Council may be in doubt. A check to cover the costs of the reference accompanied the petition, which, however, was rejected. The Minister of Justice, Sir John Thompson, made an elaborate report on the petition. Subsequently the question was referred by the Governor-General to the law-officers of the Crown in England, who declared the act constitutional. The agitation was directed mainly not against the Quebec Government, which was responsible for getting the act passed, but against the Dominion Government, which refused to disallow it. When the Hon. C. C. Colby presented himself for re-election in the county of Stanstead, on his accepting a Dominion portfolio, he was opposed on this issue, but carried the constituency by an overwhelming majority. There is, however, no doubt that the personal popularity of the member, his long connection with the constituency, and his added prestige as a Cabinet minister, contributed greatly to this result.

Franchise.—An act was passed to amend the Quebec election act by extending the franchise, and to amend the municipal code respecting the preparation of the valuation roll. Under the new act, the following are entitled to vote: owners or occupants of real property worth, \$300 in any city municipality returning a member to the Legislative Assembly, or worth \$200 real value, or \$20 annual value, in any other municipality; tenants paying \$30 per annum in such cities, or as far as the value of the farm will permit; sons of real-property owners under similar

conditions; fishermen owning tackle or shares in a ship to the value of \$150; the sons of tenant farmers exercise the same rights as the sons of real-estate proprietors, the annual value of the farm being made the basis of the franchise. The absence of a farmer's son from the farm for six months, or absence as a student, does not deprive him of the franchise; \$20 in the other municipalities; teachers in any institution under the control of school commissioners or trustees; retired farmers or proprietors (*rentiers* or annuitants) enjoying at least \$100 a year in money or its equivalent; farmers' sons who have worked on their fathers' or mothers' farms for one year, provided the value of the farm, if divided among them as co-proprietors, would be sufficient to qualify them under this act; if more sons than one, they are to be qualified in order of seniority. Civil servants in the employ of the Federal or provincial governments, or the Federal Parliament or Provincial Legislature (the members of the governments and the Speakers excepted), are disfranchised by another act.

Agricultural Distinctions.—An act was passed to establish a system of honorary rewards for the most skillful practical agriculturists. The act provides for provincial competitions in which all who have obtained prizes in county or division competitions for the best kept farms may compete. Diplomas and medals are to be granted to the successful competitors in agriculture, market gardening, and fruit culture.

District Magistrates' Court.—The act of 1888 abolishing the Circuit Court and substituting therefor a court to be called the District Magistrates' Court, having been disallowed by the Federal Government, as noted in the ANNUAL CYCLOPÆDIA for 1888, an act was passed at this session establishing a District Magistrates' Court, but without pretending to abolish the Circuit Court.

Montreal.—The charter of the city of Montreal was remodeled. Among other important amendments, vote by ballot was substituted for open voting in civic elections.

Sorel.—The town of Sorel was incorporated as a city. This new city is on the right bank of the St. Lawrence, below the mouth of Sorel river, forty-five miles from Montreal. It is the county seat of Richelieu County, has long enjoyed a large lumber trade, with growing manufactures, and has communications by rail as well as by river. It has a favorite winter harbor, and ship-building is one of the principal industries. The others include manufactures of engines, mill machinery, stoves, plows, bricks, leather, and flour. The town is handsomely laid out, with a large public square, and has fine schools and other educational advantages, including a Roman Catholic college. There are also a convent and a hospital. One monthly periodical is published here, and several papers, some in French and some in English. In the seventeenth century the French built a fort on this spot, and afterward the town was for many years the summer residence of the governors of Canada.

R

REED, THOMAS BRACKETT, an American statesman, thirty-first Speaker of the United States House of Representatives, born in Portland, Me., Oct. 18, 1839. He received his primary education in the common schools of that city, and was graduated at Bowdoin College in 1860, taking the prize for excellence in English composition. Until 1864 Mr. Reed was engaged in teaching and the study of the law, but before his admission to the bar he was appointed, April

dates in caueus being Gen. Harris M. Plaisted, later Governor of the State, and Edwin B. Smith, afterward Assistant Attorney-General of the United States. He was the youngest man ever elected to this office. His ineumbency, marked by active and efficient measures, lasted three years (1870-'73), and in 1874, by request of the Mayor of Portland, he became city solicitor, holding the office for four terms. In 1876 he was elected to the Forty-fifth Congress, taking his

seat in December, 1877. On April 12, 1878, Mr. Reed was brought into prominence by a speech to defeat the passage of a measure to reimburse William and Mary College for damages sustained at the hands of United States troops during the civil war. While accomplishing its immediate purpose, this, one of the few long speeches made by Mr. Reed upon the floor of the House, also assisted in defining the policy of the Government on war claims. Mr. Reed also acted in this Congress as one of the minority members of the committee for investigating the circumstances of the election of President Hayes, and took a conspicuous part in the proceedings at Washington, New Orleans, and New York. He was re-elected without intermission, and his parliamentary career may be thus briefly summarized: In the Forty-sixth Congress, on the Judiciary Committee, he entered frequently into debate, and defended the presence of United States marshals at elections in the South. In the Forty-seventh, as Chairman of the same committee, he was responsible for and carried through the bill distributing the balance of the Geneva award. In the Forty-eighth Congress his leadership of the Republican party in the House became more strongly marked, and



THOMAS BRACKETT REED.

19, 1864, acting-assistant paymaster in the United States navy, and assigned to duty on the "Sybil," a "tin-clad" under command of Lieut. Henry H. Gorringe, which patrolled the Tennessee, Cumberland, and Mississippi rivers, without eventful service. Mr. Reed was honorably discharged Nov. 4, 1865, returned to Portland, was admitted to the bar, and began the practice of law. In 1868 he was elected, as a Republican, to the lower branch of the Maine Legislature, where he served on the Judiciary Committee, and secured during his first term the establishment of a Superior Court for Cumberland County, which reduced from three years to three months the time necessary for bringing contested suits to jury trial. In 1869 he was re-elected, and in 1870 he was sent to the State Senate. While sitting in that body, he received the nomination for Attorney-General of the State, rival candi-

dates in the Forty-ninth and Fiftieth it was permanently secured, more particularly in the conflicts on the subject of the tariff.

The nomination for the speakership, twice tendered him as a compliment by the Republican minority in the House, proved more than a barren honor on the assembling of the Fifty-first Congress, Dec. 2, 1889, when, on the first ballot, he was chosen Speaker over the Democratic nominee, Hon. John G. Carlisle. Almost immediately Mr. Reed's determined attitude against the obstruction of public business by partisan methods resulted in an issue between him and his political opponents, which attained wide notoriety, and, it is believed, will largely influence legislation in the future. Pending the report of a committee appointed to draft new rules for the House, embodying contemplated reforms (of which committee Mr. Reed was

chairman), a contested election case brought up in the House Jan. 29, 1890, afforded the Speaker an opportunity to decide against the validity of the principle that a member of Congress who is personally present may, in order to prevent a quorum, refuse to vote, and therefore be accounted absent. Mr. Reed's insistence upon noting the presence of sufficient numbers and declaring that a quorum was present, notwithstanding the refusals to vote, according to his construction of the Constitution, gave rise to fierce opposition, and stormy and exciting debate ensued. The rulings of the Speaker were sustained in every instance, and the question was finally set at rest by the adoption, Feb. 14, 1890, of the new rules, Section 3 of Rule XV. providing that—

On the demand of any member, or at the suggestion of the Speaker, the names of members sufficient to make a quorum in the hall of the House who do not vote, shall be noted by the Clerk and recorded in the Journal, and reported to the Speaker with the names of the members voting, and be counted and announced in determining the presence of a quorum to do business.

Among other reforms covered by the new rules, and advocated by Mr. Reed, the minority gave most serious challenge to that which provided that the Speaker might refuse to entertain motions that were evidently merely dilatory. In controlling the House, Mr. Reed displays executive ability of a high order. His power has not been acquired by the delivery of set speeches—but three of which lasting more than twenty minutes are on record—but lies rather in his brief, clear showing of an argument in debate, pointed often with wit or sarcasm. He has contributed articles to periodicals as follow: To the "North American Review" for January, 1888, "Our Outlying Province" Alaska, which he visited; to the same magazine for July, after the Democratic National Convention, "Democracy at St. Louis," and for October, "The President's Letter," a consideration of Mr. Cleveland's letter of acceptance. "The Rules of the House of Representatives" in the "Century" for March, 1889, was anticipatory of the course he has since pursued, and in "Belford's Magazine" for October, 1889, he discussed the tariff, under the title of "A Protectionist's View of it." In the "North American Review" for March, 1890, he set forth his views and the authorities by which he held himself sustained in the position assumed by him on Jan. 30, regarding "The Limitations of the Speakership," an article presenting the antagonistic view, by ex-Speaker John G. Carlisle, being published in the same number.

REFORMED CHURCHES. I. Reformed Church in America.—The statistical reports made to the General Synod of 1889 give the following numbers in this Church; of classes, 35; of churches, 546; of ministers, 566; of families, 48,772; of communicants, 88,812; of baptisms during the year, 5,238 of infants and 1,268 of adults; of baptized non-communicants, 37,722; of persons enrolled in catechumen classes and Sunday-schools, 103,101; whole amount of contributions for religious and benevolent purposes, \$282,052; of contributions for congregational purposes, \$970,986.

The receipts of the Board of Domestic Missions

had been \$54,294, of which \$36,647 were in the Missionary Department, and \$17,647 were on account of the Building fund. The Woman's Executive Committee had, in addition to this, collected and expended \$4,764. The Missionary Department had a balance in hand, while the Building fund was in debt. One hundred and twenty churches and missions had been aided, comprising 95 pastors, 5,127 families, 7,420 members, and 10,269 members of Sunday-schools; while 626 members had been received on confession of faith. Ten new organizations had been added to the board's list, and five unorganized missions had been wholly or partly sustained during the year.

The Board of Publication had received \$1,827 from the churches, and had carried on its business at a small profit. The "History of the Reformed Church," by Prof. David D. Demarest, D. D., was about to appear. The Board of Education had received \$19,162, of which \$6,598 had been contributed by individuals, Sabbath-schools, and churches. Its permanent funds amounted to \$41,665. Ninety-one students were under its care. The Widow's fund returned a principal of \$76,225, and an annuity fund of \$2,075. A comparison with the statements of previous years showed that while the principal was increasing at the rate of about \$3,000 a year, the annuity fund was steadily decreasing. Annuitants had during the year received \$4,626 from the fund. Eighty-seven ministers were subscribers to the fund.

The principal of the Disabled Ministers' fund amounted to \$53,775. The receipts for the year had been \$9,984. Thirty-seven persons—ministers, ministers' widows, and ministers' children—had received aid from the fund. Returns made were of numerous Educational and Scholarship funds connected with the theological seminaries at New Brunswick, N. J., Holland, Mich., and Ascot, India, and Hope College, Mich. The whole amount of the funds as entered upon the balance sheet of the General Synod was \$768,836.

The Board of Foreign Missions had received \$131,962. From the mission fields in China, India, and Japan were returned 14 stations; 127 out-stations and preaching-places; 23 ordained missionaries; 3 unordained missionaries; 30 assistant missionaries; 26 native ordained ministers; 248 other native helpers; 51 churches, with 5,089 communicants; 762 members received on confession; 7 "male" and 6 "female" seminaries, with 630 pupils; 4 theological schools and classes, with 45 theological students; and 108 day schools, with 3,100 pupils. The contributions made by the native churches amounted to \$8,058. The mission in Japan is represented in the Council of United Missions, the administrative organization of the United Church of Japan. This body is composed of the missions of the Reformed Church, the Northern and Southern Presbyterian Churches of the United States, and the United Presbyterian Church of Scotland, and includes 61 churches, 28 of which are self-supporting, with 80,690 members. Of these, about one third are believed to be connected with the missions of the Reformed Church. The Woman's Board of Foreign Missions had received \$17,893.

The General Synod met in Catskill, N. Y., June 1. The Rev. Evert Van Slyke was elected pres-

ident. The Committee on Union with the Reformed Church in the United States reported progress, expressing the judgment that no present prospect existed of effecting the organic unity of the two churches in the sense of fusion; yet there ought to be, and was, a fair and reasonable basis for a federal union, or at least an alliance for objects common to both churches, and for the "furtherance of the Gospel" by united efforts, and it recommended that the movement for union be given another year's consideration. The committee was continued. An address was adopted to be sent to the Christian Reformed Church of the Netherlands, in answer to inquiries on the subject, explaining the position of the Church toward Freemasonry, as expressed in the action of the Synod in 1870, 1880, and 1881—that it does not sympathize with oath-bound secret societies, but does not consider itself competent to interfere with the prerogatives of the lower bodies in the exercise of discipline. Amendments to the constitution respecting the mode of electing deacons and elders and prohibiting the use of any catechisms in the Sabbath-schools save such as are approved and recommended by the General Synod, having been approved by the requisite number of classes, were declared adopted. New amendments were proposed fixing eighteen years as the age at which young communicants shall be qualified to vote for elders and deacons; and constituting the President of the General Synod, if not appointed a regular delegate, a corresponding member of the succeeding General Synod. A committee appointed in the previous year to make additions to the liturgy reported a number of forms which were approved, and sent down to the classes to be voted upon as optional forms. The adherence of the Synod to the American Sabbath Union was continued. A resolution was passed condemning Sunday newspapers, and advising Christians to refuse to read, buy, or advertise in them, and in every possible way to discountenance them. In view of organized efforts to secularize the day of rest, the ministry and membership of the Church were called upon to co-operate in every effort to maintain its sanctity. A new manual, prepared by a committee appointed for the purpose, called "First Lessons in Christian Faith," was approved and recommended for introduction and use in the Sabbath-schools.

REGISTRY LAWS. New Hampshire had a registration act in 1840 and New York one in 1857. Illinois appears to have come next, with a law enacted in 1865. Nearly all of the registry laws in their present forms have been enacted since 1870. So far as can be ascertained from the latest official sources, six States have no registry laws of any kind—Arkansas, Delaware, Indiana, Oregon, Texas, and West Virginia. The constitutions of Arkansas, Texas, and West Virginia prohibit registration. The Supreme Court of Oregon in 1886 declared unconstitutional the law of that State requiring a registration of voters as a prerequisite to the exercise of the right of suffrage. The decision took the broad ground that "every law which requires previous registration as a prerequisite to the right to vote is *ipso facto* void." The argument was that, as the Constitution gives the right to vote to every man who possesses certain qualifications, the

Legislature can not lay down conditions that may deprive any qualified voter of the right on election day. A constitutional amendment providing that registry laws may be passed was adopted at the last session of the State Legislature, and after receiving the assent of the next Legislature it will be submitted to a popular vote. The Constitution of West Virginia provides that "No citizen shall ever be denied or refused the right or privilege of voting at an election because his name is not or has not been registered or listed as a qualified voter. . . . The Legislature shall never authorize or establish any board or court of registration of voters." The remaining States require a partial or a general registration. Fourteen of the States have no general registry law applying to the whole State, but they have special laws applying to some of the cities or smaller communities. The special provisions in these States will be found in detail in the list below:

Georgia.—No State law. Cities and towns have registry laws of their own, and so have many of the counties. No election code has been published, and the details can be found only by examining the statutes for the past twenty-five years.

Kansas.—The Supreme Court in 1884 held that the registry law of 1879 was constitutional. It allowed registry on any day in the year except election day and for ten days preceding. The law of 1889 provides that in cities of the first class where the metropolitan police law is in force and where more than 6,000 votes were cast in 1888, or shall be cast at any future general election, the Governor shall appoint a commissioner who shall have charge of the registry. The voter must appear in person, and if his answers are satisfactory he shall be given a certificate. If refused, he may appeal to the board of supervisors of elections, which has power to place his name upon the list. In cities of the first class where more than 6,000 votes have been cast, but where the metropolitan police law is not in force, the commissioner of elections shall appoint a councilman from each ward, and the councilmen together shall act as a board of supervisors of elections.

Kentucky.—There is no State registry law. Some of the cities have special laws.

Louisiana.—The law of 1880 provides that the Governor shall appoint a supervisor of registration for the parish of Orleans, in which the city of New Orleans is situated. The supervisor can appoint his clerks. His office shall be open for sixty days before the election. If he suspects that names have been placed wrongfully on the registry list, he may give notice to the voter to show cause why his name should not be stricken off. The list shall be closed ten days before the election. It shall be corrected before every general election. No certificate of registration shall be issued in any parish except that of Orleans.

Minnesota.—The law of 1889 applies to all incorporated cities of 10,000 and over. The judges and clerks of election in any such city, or any ward or other election district in such city, constitute a board of registry for their respective cities, wards, or election districts. They shall meet on Tuesday, three weeks before any general, State, or city election, and fourteen days before any special election. Minute directions are given for the entering of names in the registers. Oaths are administered to all persons desiring to register. On Tuesday, two weeks before any general election, and on the thirteenth day before any special election, the board shall meet again to register those who shall apply in person. On Tuesday, one week preceding the day of any election, and on the day one week preceding any special election, the board shall meet for final correction of the registry; and no person shall be registered who does not apply personally.

Disqualified voters shall be stricken from the list. A certificate of removal from any district is required before registering in a second district. If a voter's name has once been entered on the registry and then erased, he may swear it in on election day.

Missouri.—The Constitution declares that the General Assembly shall provide by law for the registration of all voters in cities and counties having a population of more than 100,000 inhabitants, and may provide for such registration in cities having a population exceeding 25,000 inhabitants and not exceeding 100,000, but not otherwise. The law of 1883 applies to St. Louis and Kansas City as the only cities having the required population. It provides that recorders of voters shall be appointed by the Governor and be confirmed by the Senate for both cities, with a term of office of four years. Each recorder of voters may prescribe the manner of opening the books and he may decide the times upon which registry may be made. Every voter registering must take and subscribe the oath required of voters that he will support the Constitution of the United States and of the State of Missouri. The recorder of voters shall appoint a board of revision from different political parties, which shall meet with him to examine the lists and to make corrections. The city of St. Joseph comes under the registry law of 1881, which applies to counties containing cities of over 25,000 and fewer than 100,000 inhabitants.

Nebraska.—The law of 1889 applies to metropolitan cities, or all having over 80,000 inhabitants, to first-class cities having between 80,000 and 25,000, and to second-class cities having fewer than 25,000. Cities of the first class are allowed by ordinance to provide a registry and to prohibit all voters not registered from voting. Ordinances may be repealed or re-enacted or amended, but the registration of the last general election is valid for a special election. The mayor and council of any metropolitan, first-class city or second-class city of over 2,500 inhabitants, shall prepare registry books and include minute descriptions of the residences of the voters. There are three supervisors of registration, two of whom on State issues must be of different political opinion from their associates. A general registration shall be made in each election precinct of every city on the Tuesday of the fourth week, the Wednesday of the third week, the Thursday of the second week, and the Friday and Saturday of the first week preceding the day of the November election in each year. For every election held in any of the cities other than such as are above designated there shall be a revision of the general registration, which shall be made on the Friday and Saturday of the second week and on the Saturday of the first week preceding the day of such election. Unregistered votes may be accepted at the election on a sworn statement as to place of residence and qualification and the giving of good reasons for not appearing before the supervisors of registration on any day of registration. A name must be erased from the register in one precinct before it is registered in another.

New Jersey.—The law of 1876, as amended in 1883 and 1886, provided that there should be a registry in all cities of over 6,000 inhabitants; that where a city has fewer than 6,000, and lies adjacent to another city containing more than 6,000, the provisions of the act should also apply to the smaller city; and that the act should not apply to any municipality incorporated as a town. The judges and inspectors of election in the several wards or election districts of such cities constitute a board of registry. Such boards shall hold their first meeting for registry on Tuesday three weeks before a general State election, and they shall register voters who shall personally appear before them or shall be shown to have legally voted in the ward or district at the last general election or be shown to be legal voters therein. The board shall also meet on Thursday preceding the day of general election, for registering and correcting. The voter must appear in person before the board of registry, or else he must

satisfy it with a sworn statement as to his qualifications before his name can be entered upon the list.

New York.—The first registry law was passed in 1857. It applied to the whole State; but its operation was so unsatisfactory that it was soon repealed. In 1875 the Court of Appeals affirmed the constitutionality of the law of 1872; although the Constitution of the State is silent on the subject of registry. This law, somewhat amended, is in force to-day. It provides that in all cities except New York and Brooklyn, and in all incorporated villages of over 7,000 population by the last census, registry is required, but the voter is not required to appear in person. In all towns adjoining a city of 16,000 inhabitants, registry may be required on the petition of 25 electors. If no such petition is offered registration is not required. In other towns no provision for registration is made. In all the cities and towns, outside of New York and Brooklyn, the inspectors of election form boards of registry. They shall meet on Tuesday, five weeks previous to the general election, and they shall enter minute descriptions of the persons proposing to register. Personal application is not necessary, but the inspectors may copy from the roll of the last election and make such corrections as they think necessary. They shall meet again on the Tuesday of the week preceding the day of the general election, and they shall then revise their lists. Voters who can show that their names were on the preceding registry list may swear in their votes if their names have not been copied upon the list latest in use. A special law of 1882 applies to the city of New York. The mayor appoints a bureau of elections. The board of police prepares the books for registry. It is required that every voter desiring to register shall appear in person. The registry takes place on Tuesday of the fourth week, Wednesday of the third week, and Friday and Saturday of the second week preceding the day of the November election in each year. Another special law relates to the city of Brooklyn. The mayor appoints four persons to constitute a board of elections, which shall appoint registrars of electors. The registrars shall meet on the last Tuesday of September, on the second Tuesday of October, on the Tuesday two weeks before the day of the November election, and on the Thursday preceding the day of election. Every voter that desires to register must appear in person. In New York and Brooklyn voters are not allowed to swear in their votes on election day if their names have not been placed upon the registry.

Ohio.—The registry law of 1885, applicable only to the cities of Cincinnati and Cleveland, was pronounced unconstitutional by the Supreme Court of the State, on the ground that the rights of the voters were restricted by the provisions allowing only seven days in the whole year for registry, thus depriving of their rights all voters who did not register in those seven days. In 1889 a law was passed applying the registry of voters to the following cities: Cincinnati, Cleveland, Toledo, Columbus, Dayton, Springfield, Hamilton, Sandusky, Steubenville, Newark, Youngstown, Zanesville, Mansfield, Chillicothe, Portsmouth, Canton, and Akron. The law provides that the Governor shall appoint for each city of the first and second class a board of elections to consist of four electors, not more than two of whom shall be of the same political party. On or before the first day of September annually the board of elections shall appoint for each election precinct in its city two electors to act as registrars and also as judges of election. The two registrars for any precinct shall be not of the same political party. The days for the general registration of electors yearly shall be Thursday in the fourth week, Thursday in the third week, and Friday and Saturday in the second week, next before the day of the general election in November in each year. The secretary of the board of elections may register persons who will necessarily be absent during registration; and if the voter is more than fifty miles distant from the place of registration he may make affidavit that he is entitled to register, and mail it to the board of registry.

With these exceptions, all voters must apply in person; but no one can be registered at any other time or place than those designated in the act. Applicants must sign their names to the entries in the register. Any voter disabled by sickness may make affidavit of the fact and be registered. The final list is made up annually on Monday in the week preceding the November election. Elections in April, or at any other time aside from the November elections, shall be held according to the last preceding register; but provision is made for changes and additions if required.

South Dakota.—Each clerk of election shall keep a poll list, which shall contain the names of all persons voting at such election in their numerical order. As soon as a ballot is delivered to one of the judges of election to be deposited in the ballot-box, the clerks of election enter the name of the voter on their lists. In cities having a population of 1,000 voters or more the judges of election of each precinct constitute a registry board; and they meet two weeks before any general election and make a list of all persons entitled to vote at the ensuing election in their precinct. No person is allowed to vote unless his name appears on the list.

Tennessee.—Registry is required in districts that cast more than 500 votes. A certificate of registration is issued.

Washington.—There is no State law. For each of the cities there is a law requiring all qualified electors to register thirty days previous to any municipal election.

Wisconsin.—In 1885 the law required an annual registry in each ward or election district of every city of 3,000 inhabitants or more; in each ward or election district of every incorporated village of 1,500 or more; in every town containing a village having 1,500 or more, in which village separate general elections were not required to be held; and in all towns, any part of which had been embraced in any city or village in which registration was required. In 1889 the general law requiring the registration of electors was made to apply to the annual municipal and judicial elections in all towns, villages, and cities in which registration was required at town elections. The inspectors shall meet on Tuesday, four weeks before each general election, and sit for one day, or two days if necessary. They shall make a register of all electors of their respective districts. A second meeting shall be held on Tuesday one week before the election, to revise and correct the register. Names can be stricken off on oath of two electors unless, being challenged, the voter gives satisfactory answers. Voters may appear before the board and take oath as to their qualifications. In 1887 a law provided that the vote of a person not registered would not be received in any city having not fewer than 3,000 nor more than 20,000 inhabitants; but in cities of fewer than 3,000 a vote may be sworn in on election day. No vote shall be received at any general election if the name of the person offering to vote is not on the register, unless he has become a qualified voter since the last meeting of the board, or unless he makes oath that he was qualified to vote at the previous general election and has not become disqualified since. The law of 1887 amended former laws so that in all cities of over 50,000 inhabitants, the inspectors of election and clerks of election constitute the board of registry. They shall meet on Tuesday, one week previous to the general election, to revise the lists. No names shall be entered after the list is completed.

Twenty-two States require general registration. The provisions of their respective laws are as follow:

Alabama.—The code provides that the Secretary of State shall superintend the registration of electors. He shall appoint one registrar in each county, who shall appoint one assistant registrar for each voting precinct or ward in the county for which such registrars are respectively appointed; and such assistants shall, as soon as practicable after their several appointments, make a full registration list of all the

electors in the precincts or wards for which such assistants are appointed respectively. Each assistant registrar shall make a correct return of the list of registered electors made by him. Assistant registrars shall make registration of the electors residing in their respective precincts or wards upon blank forms provided for that purpose, and they shall not register in any other way or on any other form than that prescribed. Each elector, who is qualified to vote, must subscribe to an oath that he is a qualified elector under the Constitution and laws of the State; and the name of each elector must either be subscribed to such oath by the elector himself, or be subscribed by the assistant registrar; but when signed by the assistant, it must be with the consent and direction of the elector so to do, which shall be evinced by the attestation of the assistant registrar's name written opposite to the name of the elector. The assistant registrars shall write opposite to the name of each elector, under the appropriate head in such form, the number and date of registration, the place of residence of the elector, whether white or colored, his employment; and if he is in the employment of another, the name of such employer; and if the elector resides in any town or city, the street and number, or other mark or description by which his place of residence may be identified. The assistant registrars shall be present, at the voting precinct or ward for which they are respectively appointed, on the day of election to register such electors as may have failed to register on any previous day in their precincts or wards. It is not lawful to register any elector within twenty days before, nor in any incorporated town or city having a population of more than 5,000 inhabitants within fifteen days before any general or special election day; and all registrations made on the election day, by any registrar appointed for that day only, shall be returned to the assistant registrar for that precinct or ward properly certified, which shall be returned to, and be treated by, the judge of probate as if made by the regular assistant registrars. But in incorporated cities or towns having a population of more than 5,000 inhabitants any person who may have attained the age of twenty-one within fifteen days next preceding any general or special election, and who is qualified to vote under the Constitution and laws of the State, may be registered by the probate judge of the county on the day of election, and he shall cause the name of such elector to be entered upon the registration list of the ward in which such elector shall reside, and he shall issue to such elector a certificate of registration.

California.—The code provides that a great registry shall be kept in the office of the county clerk of each county. The board of supervisors of any county may order a new registry whenever they think best on six months' publication. This registration must conform to the provisions of the code concerning original registration, except that any person applying for registration may be entitled to it if he can show that his name was enrolled, and not erased, on the former great registry. A law of 1878 left San Francisco under the control of a local law creating commissioners for the registry of voters. The several counties vary somewhat in regard to the great registry. The code further provides that the clerk must enter in the great registry full particulars of the voter, and also that the voter must make oath to certain questions. The assessor of each county must keep a list of electors similar to the great registry, and he must enroll the name of any elector of the country making application to him. This enrollment must show the same facts as those required to be recorded in the great registry. At the end of every month the assessor must return to the county clerk a certified copy of all the entries made upon his roll of electors during the month, and the clerk must at once enter these names upon the great registry. The clerk has power to cancel registry at the request of the person registered, or when the person has become insane or has been convicted of crime or is dead; also when the person did not vote during the next preceding two years. Any

voter may proceed by action in the Supreme Court to compel the clerk to cancel any entry made on the great registry illegally. Provision is made for the swearing in of votes on election day.

Colorado.—The law of 1885 provides that the judges of elections in the several wards and election precincts shall meet on Tuesday, three weeks before the general election, to make a register. The number of days they sit depends upon the number of votes cast in the precinct. The board shall enter on the list the names of all legally qualified electors and those who shall become such by lapse of time on or before the next general election. Every board of registry shall also meet on the Tuesday of the week preceding every general election, and also on the day preceding the election. No vote shall be received at any election unless the name of the person offering to vote shall be found on the certified registry list; but votes may be sworn in on election day.

Connecticut.—No person shall be excluded from registration on the ground that he can not read, if he can prove that he was admitted an elector of the State before October, 1855. In 1884 it was provided that the registrars of every town shall, at least eighteen days before the election of the Tuesday after the first Monday of November, 1888, and every other year thereafter, complete a register of electors. Amendments to the law of 1877, provide that the registrars shall be in session on Thursday of the third week preceding the election, and they shall minutely describe the residence of the electors. Names of criminals shall be stricken from the list on information being furnished by the clerk of any court in the State having jurisdiction in criminal cases. Former residents of the State may vote on election day, upon making affidavit of residence, if they have not been registered.

Florida.—The Constitution of 1885 requires the registry of voters by counties. The law of 1887 provides that the Governor shall, every two years, appoint one person in each county to be the supervisor of registration. He shall keep his office open at least three days in each week, from the first Monday in August to the last Saturday preceding the first Monday in October. The district registration offices must be open at least two days in each week from the first Monday in September to the last Saturday in September. Each elector on registering is given a certificate without charge.

Illinois.—The judges of election constitute the board of registry in the election precinct for which they are appointed. They shall meet in the precinct on Tuesday four weeks preceding the first general city, village, or town election, or the first general State or county election that may occur after their appointment, and they shall make a general registration. A new general registration shall be made prior to each presidential election. On Tuesday three weeks preceding the State, city, village, town, or county election the board of registry shall meet again; and also on the Tuesday two weeks before any of these elections. The three registers made on these separate days shall be compared and combined into a new register. Applications of all kinds may be heard on the Thursday following the Tuesday two weeks before the election; and on the Monday or Tuesday of the week before the election week, the county court shall be open for applications. But after the entry of the applications allowed by the court no further change in the register is permitted. It is allowed to swear in votes on election day. For intermediate elections (between the presidential elections) the last general registration shall be used; but it may be revised by the board of registry. Chicago and East St. Louis have an election law that differs somewhat from the general law. It requires that a registry must be made for every election, whether general, special, or local; and voters are not allowed to swear in their votes on election day, except in extreme cases.

Iowa.—The law of 1888 amended a law of the previous year so that the registers shall be in attendance on the second Thursday preceding every general an-

nual election; that in 1888 and on every fourth year thereafter they shall attend three days, and for every other general annual election two days. A new registration shall be made in 1888, and every fourth year thereafter; and after all other general annual elections they shall prepare a new registry list based on that of the last preceding general annual election. For all other general or special elections, the registry list for the last preceding general annual election shall be used. On the day of every election the registers shall be present at some convenient place, but not within 100 feet of the voting place, to grant certificates, in certain cases, to electors not registered; this law applies to places that have a population of more than 2,500 inhabitants.

Maine.—The law of 1883 requires that in every town the assessors, or the selectmen acting as assessors, shall by Aug. 1 (in years wherein general elections are held) prepare lists of voters and deliver them to the selectmen. In towns of more than 3,000 inhabitants the selectmen shall be in session two days between Aug. 11 and Aug. 18, to correct the lists. In smaller towns the municipal officers or the selectmen shall be in session one or two days before the election; and in the smallest towns on election day, to the opening of the polls. The lists are prepared by the aldermen and the assessors in the cities in the same way, and they are open for correction.

Maryland.—The law of 1882, amended since that time, allows the Governor to nominate and the Senate to confirm one person in each election district of every county to be an officer of registration. In Baltimore the board of supervisors of elections, not later than the 15th of April in each year, shall appoint three officers of registration for each of the precincts of the several wards, two of whom shall be from the two leading political parties of the State, one from each party. In Baltimore the officers of registry shall sit two successive days in May, and the same number of days in June, July, September, and October. In the State, officers of registration shall sit two successive days in October. A registry holds good for every election held thereafter until another registration, or correction thereof, has been made. On the day of election the clerk of the circuit court for each county, and the clerk of the Superior Court of Baltimore, shall be at his office to issue certificates to those who can prove that errors in registry have been made.

Massachusetts.—The law of 1884 provides that the board of registrars of voters shall be appointed by the selectmen of each town and by the mayor of each city, subject to the approval of the board of aldermen. No more than two of them shall be of the same political party. Full particulars shall be given of each voter on the list. No person shall be placed upon the list unless he writes his name and is able to read at least three lines of the Constitution. Registrars of voters in cities and towns shall, at least twenty days before the annual city or town election, and at least thirty days before the Tuesday next after the first Monday in November annually, make their corrected lists. Names registered may be transferred or stricken from the list upon notice and examination. Registrars in cities shall be in session until ten o'clock in the afternoon of the Saturday next but one preceding the day of any election and for such time previous as may seem necessary. Registration of voters in towns shall cease at ten o'clock in the afternoon of the Wednesday next preceding the day of election, and in cities at ten o'clock in the afternoon of the Saturday next but one preceding the day of election; and no entry shall be made on the list after the close of registration. Names omitted by clerical error or by mistake may be placed upon the list. A certificate of the right to vote may be given if application is made on the day of election. The city of Boston has a special registry law. A law of 1889 enables cities to change their boards of registrars so that the clerk shall not be a member thereof. Another law regulates the assessment and registration of voters as to lists of persons liable to or desiring to be assessed for a poll tax.

Michigan.—The law of 1859 constituted the aldermen of every city, and the supervisor, treasurer, and clerk of every township, a board of registry. On Saturday next preceding the general election and on the next preceding the day of the regular charter election or any special election, and on such other days as are appointed by the common council of the city, not exceeding three days in all, the board of registration shall be in session. This does not apply to Detroit. In that city the board for each ward or election district shall sit on the first Monday in October in every fourth year, for the purpose of making a re-registration of each ward or election district. In other years the former list shall be worked over and corrected. It is provided that any voter claiming the right to vote, whose name is not registered, may be registered both in the cities and in the townships on the day of election.

Mississippi.—The Constitution requires a general registration, and makes provision for registry laws. The revised act of 1880 provides that boards of registry shall be appointed in each county. The clerk of the circuit court of each county shall register on the registry book of the election district of the residence of such person, any one entitled to be registered, if he applies personally, and makes an oath as to his qualifications. The supervisors of each county may order new registry books.

Montana.—The Territorial law of 1889, adopted by the State Legislature, directs boards of county commissioners, every June, to lay out their respective counties in convenient election districts. One registry agent for each election district shall be appointed by the county commissioners. But in cities of over 50,000 inhabitants there may be two registry agents in each election district. Registry agents must give minute particulars of voters registered. They shall sit on all legal days between Sept. 15 and Oct. 5; and longer hours from Oct. 5 to Oct. 15. There can be no registry on failure to give residence and other particulars. An oath as to facts must be administered to voters asking registration. The registry holds good for two years, unless the residence is changed, and this requires a new registration. Changes of residence may be made until the day before election.

Nevada.—The law of 1869, superseding the original registry law of 1866, made justices of the peace in the several counties the registry agents of their respective townships; but in any township where there is no justice of the peace, or where the election district is distant from the office of a justice, the commissioners of the county may appoint some other person to perform the duties of registry agent. Such agents shall sit on all legal days between July 1 and Oct. 21 before any general election, and for twenty days prior to closing the registry (which shall close ten days prior to the day of election) for any special or municipal election. They shall sit extra hours for the ten days next preceding the closing of the registry. An oath must be administered to voters asking registration. Objections to any voter on the list may be made until the fourth day before election. If a voter's name is erased, he can appeal to the court. The registered voter moving from one district to another before election day must provide himself with a certificate from his former place of registration before he can be registered again. In 1873 it was enacted that no person shall be permitted to vote whose name is not on the registry.

New Hampshire.—The general law of 1878 provides that a board of supervisors shall be elected in each town every other year. They shall hold meetings and give hearings preparatory to the making of a check-list. In towns of more than 600 voters, the first meeting shall be held six days before election day, and the meeting shall be continued from day to day until all applications have been heard. A voter who is not on the list is not allowed to vote unless he can prove his claim, and he must appear in person.

North Carolina.—The amendments of 1889 require the commissioners of counties to select one or more

persons for each election precinct to act as registrars of voters for such precinct. Such registrars shall revise the existing registration books without requiring voters to be registered anew; and on each day for thirty days preceding the day for closing the books they shall keep them open for additions or corrections. But the commissioners may, on thirty days' notice, direct an entirely new registration of voters instead of a revision of the list. Registration must specify the age, occupation, place of birth, and residence of the voter. The books shall be closed on the second Saturday before each election. Registrars may erase the names of unqualified voters. Every voter presenting himself for registration shall answer all questions under oath. No registration is allowed on the day of election.

North Dakota.—The law adopted by the State at its organization in 1889 provides that the judges or inspectors of any election precinct shall be a board of registry. They shall meet on Tuesday, two weeks preceding any general election, and make a register of all qualified voters. The list of the preceding election shall be the basis of the new registry, and the board may change it as they see fit. The board shall meet again on Tuesday preceding the general election. If a voter is not registered he may swear in his vote on election day, and it must be accompanied by an affidavit in writing stating that he is entitled to vote.

Pennsylvania.—In 1868 the Supreme Court set aside the former registry law as unconstitutional because it imposed burdensome restrictions. The State Constitution now provides that all laws regulating the holding of elections by the citizens, or for the registration of electors, shall be uniform throughout the State. In every district the judge of election shall select one of the inspectors, who shall have in custody the registry of voters. On the day of election a person whose name is not on the registry and who claims the right to vote shall produce at least one qualified voter of the district as a witness to the residence of the claimant in the district for the period of at least two months before the election. Under this law a native-born citizen not registered but claiming the right to vote under the law may make an affidavit that he was formerly a citizen of Pennsylvania, that he removed therefrom, but has now resided therein six months next preceding the election, and that he has paid a State or county tax within two years. The law of 1874 provides that naturalized citizens not registered but claiming the right to vote may swear in their votes as residents of the election district where they wish to vote, and that native-born citizens not registered who claim the right to vote on age may make affidavit that they are twenty-one years of age and have the other qualifications for voting.

Rhode Island.—The law of 1889 requires that every person who is, or within a year may be, qualified to vote upon being registered, shall annually, on or before the last day of December, register his name with the town clerk and certify to the proof of the facts stated in the register. The town and ward clerks shall annually place upon the voting lists the names of voters that were upon the previous voting lists against whom a property tax to the amount of \$1 or upward shall have been assessed; and such persons are not obliged to register their names annually, as is required of persons not paying a property tax. The board of canvassers of the several towns or wards of the city of Providence shall meet on the last Monday in February, and within two weeks thereafter the lists shall be posted. The boards shall hold their last meeting within four days next preceding the first Wednesday in April in each year to correct the lists. They shall also meet within four days of any other general or special election to correct them. The city clerk of Providence must deliver to the ward clerks a printed copy of the tax assessment of the city. Certificates of the payment of taxes may be required to be shown on election day.

South Carolina.—Certificates are issued by supervisors of registration for each county. All electors in

the State shall be registered, and they shall receive certificates. No person shall be allowed to vote at any election unless he is registered, and no elector removing from one precinct to another shall be allowed to vote without a transfer of registration. The supervisor of registration shall furnish the managers of election with one of the registration books for each precinct, which they shall return to the supervisor of registration within three days after the election.

Vermont.—The law of 1880 provides that in towns of over 3,000 inhabitants the board of civil authority shall revise the check-list. It shall meet not later than the Saturday before an election upon a Tuesday. The names of voters who became of age before the time fixed for the completion of the check-list shall not be added at the freemen's meeting. The law of 1884 provides that thirty days before each freemen's meeting the selectmen of each town shall make an alphabetical list of the qualified voters, together with their residences, etc., and shall post it. On the written petition of 20 or more voters in any incorporated village (except in incorporated villages where the check-list has been already approved) the trustees shall, at least thirty days before any annual village meeting, make an alphabetical list of voters and post it. The village trustees and the justice of the peace form a board of civil authority to determine the qualifications of voters. The latest revision of the check-list shall be not later than the Saturday next preceding an election on Tuesday. At special elections for Congress and electors for President of the United States the check-list used at the preceding freemen's meeting shall be used, with such alterations as the board of civil authority, having given six days' notice of the meeting for that purpose, may make prior to the day of election. No person shall vote for any officer at a freemen's meeting unless his name is on the check-list prepared for use at such meeting.

Virginia.—According to the amendments of 1889, the General Assembly in December, 1889, and at each alternate regular session thereafter, shall elect three qualified voters, to be residents of the county or city for which they are chosen, as a county or city electoral board, to hold office for four years from the next 1st of January. The electoral boards shall appoint a registrar for each election district to hold office for two years. City and county electoral boards shall meet regularly in January of each year, and at any other time upon the call of any member of the board. The board shall provide for a new registration in any election district whenever they think it necessary; they shall give printed notice of sixty days; and they shall sit five days at the voting precinct. Each voter shall be sworn as to his qualifications before registering. On the second Tuesday in May each registrar shall register all qualified voters within his election district not previously registered and complete his registration. Ten days before the November election he shall sit a day to amend the list. He may at any time previous to the regular days of registration register any voter who may apply to him to be registered. The clerk of every county must furnish to each registrar in his county a list of all voters who have died or have been convicted of crime since the last registration, and such names shall be stricken from the list. The voter who has changed his residence may change his registration by showing a certificate from the registrar who had previously entered his name; but in cities and towns of over 2,000 inhabitants such change shall not be made within ten days before election. If the voter is rejected by the registrar he may appeal to the court, and an order from the court for his registration must be obeyed. Any five qualified voters of any district may, fifteen days before either of the regular days of registration, post in public places the names of voters declared to be improperly on the registration books. On the regular day of registration the registrar shall hear testimony and he shall decide upon the right of the voter. An appeal from this decision may be made to the court.

RHODE ISLAND, a New England State, one of the original thirteen, ratified the Constitution, May 29, 1790; area, 1,250 square miles; population, according to the last decennial census (1880), 276,531; Capitals, Newport and Providence.

Government.—The following were the State officers during the year: Governor, Royal C. Taft, Republican, succeeded by Herbert W. Ladd, Republican; Lieutenant-Governor, Enos Lapham, succeeded by Daniel W. Littlefield; Secretary of State, Samuel H. Cross; General Treasurer, Samuel Clark; State Auditor and Insurance Commissioner, Almon K. Goodwin, succeeded by William C. Townsend; Attorney-General, Horatio Rogers, succeeded by Ziba O. Slocum; Railroad Commissioner, E. L. Freeman; Commissioner of Public Schools, Thomas B. Stockwell; Chief-Justice of the Supreme Court, Thomas Durfee; Associate Justices: Pardon E. Tillinghast, Charles Matteson, John H. Stiness, and George A. Wilbur.

Finances.—The following is a summary of the State finances for the year: Funded debt, Jan. 1, 1890, \$1,283,000; sinking fund, Jan. 1, 1890, at par, \$853,978.08; State debt, less sinking fund, Jan. 1, 1889, \$525,358.82; decrease past year, \$96,336.90; balance in Treasury, Jan. 1, 1889, \$62,713.68; receipts, 1889, \$1,053,548.89; payments, 1889, \$937,094.84; balance in treasury, Jan. 1, 1890, \$179,167.73. The excess of treasury receipts in 1889 over 1888 was \$230,645.15; of which the excess derived from the State tax was \$131,412.14; from liquor licenses, \$69,251.10; savings banks, \$8,211.10; insurance, \$7,860.53; shellfisheries, \$5,500; miscellaneous sources, \$8,409.47. The State tax for 1889 was 18 cents on each \$100, an increase of 4 cents over 1888.

Education.—The last report of the Commissioner of Public Schools, covering the school year ending in April, 1888, presents the following statistics: Pupils enrolled, 52,722; average attendance, 33,583; male teachers, 170; female teachers, 1,168; average monthly wages—male teachers, \$85.99, female teachers, \$44.40; total expenditure for schools during the year, \$847,975.28, of which \$519,184.04 was for teachers' wages. There were 40 evening schools conducted during the year for an average of 12½ weeks, at which 5,325 pupils were enrolled, the average attendance being 2,188. The annual census of children of school age taken in January, 1888, showed 42,547 attending public schools, 7,223 attending Catholic schools, 1,663 attending select schools, and 12,962 not attending any school.

Charities and Prisons.—The State Board of Soldiers' Relief, appointed under the act adopted at the January session of this year, decided to accept as a gift from the town of Bristol the Greene farm of 110 acres in that town. A temporary home has been established at Wickford, to which 36 persons were admitted.

The crowded condition of the State Home and School renders it difficult to give the children proper care. A new cottage was nearly completed at the close of the year, but the number of children had then reached 116, and still another cottage was needed. Greater accommodations are also needed at the State prison. The cells hold from three to five men each. There were about 360 inmates at the close of the year.

Railroads.—There are fifteen railroad corporations with 257 miles of track in the State, with a capital stock of \$43,708,830. There are three street railways with 67 miles of track, with a capital stock of \$1,724,000. Another street railway has been chartered in Newport.

Legislative Sessions.—The adjourned session of the General Assembly began at Providence on Jan. 15, and continued through April 26. On Feb. 13, a bill embodying the features of the Kansas injunction law (which was demanded by the friends of constitutional prohibition, in order to secure a better enforcement of the law) was defeated in the House. The Assembly then went further, and on March 13, after protracted debates, passed a resolution proposing to submit to the people the question of rescinding altogether the prohibitory constitutional amendment. The vote in the House was 41 to 25 in favor of submission, and in the Senate 21 to 16. The resolution was referred to the next Legislature, meeting in May, for its concurrence. On March 18 the resignation of United States Senator Jonathan Chace was presented, to take effect at once. A large number of aspirants for the office appeared, and the Republican members were unable to unite on a candidate. The first ballot to choose a successor was taken in each House on March 26, and resulted as follows: Senate—Nathan F. Dixon 22, George P. Wetmore 5, Olney Arnold 6, Le Baron B. Colt 1, scattering 2; House—Dixon 19, Wetmore 23, Arnold 10, Colt 4, Thomas Durfee 5, R. H. I. Goddard 4, Royal C. Taft 1. Arnold was the Democratic candidate. Eight ballots were subsequently taken in joint session before a choice was made. On the last ballot, April 10, Dixon, who had been the leading candidate throughout, received 51 votes, or one more than a majority, Wetmore 41, Arnold 4, and Colt 2.

A ballot-reform law, similar to the Massachusetts act, was one of the most important results of the session. It provides that—

All ballots cast in elections for electors of President and Vice-President of the United States, Representatives in the Congress of the United States, general officers of the State, and members of the General Assembly, and all ballots upon any proposed amendment to the Constitution of the State submitted to the electors for approval, after the first day of June, in the year 1889, shall be printed and distributed at public expense, as hereinafter provided.

Each ballot shall contain the names of all candidates to be voted for, with their residence (street and number, if any), and the party to which they belong. They shall be arranged under the designation of the office for which they are candidates, except that presidential electors may be grouped under the name of the party nominating them. Blank spaces shall be left for writing in names that the voter may wish to insert. Nominations of candidates must be sent to the Secretary of State, who is charged with preparing the ballots. The nomination papers of any candidate chosen at a convention or caucus of any party which received at least 2 per cent. of the total vote at the last preceding election shall be signed by the chairman and secretary of such convention or caucus. The nomination papers of all other candidates must be signed by a designated number of voters, 500

signatures being required if the candidate is to be voted for throughout the State, 250 if throughout a congressional district, 50 if he is a candidate for member of the Legislature in any city, and 25 if for the same office in any town. The Secretary of State shall print on the official ballot the names of all candidates duly nominated by such nomination papers. The ballots shall be folded so that no printing shall appear, except the indorsement, which shall be printed on the back and outside, "Official Ballot for," followed by the designation of the polling place for which the ballot is prepared, the date of the election, and a fac-simile of the signature of the Secretary of State. They shall then be put up in packages of 100 each, and be distributed to the city and town clerks. At each polling place a sufficient number of voting shelves or compartments shall be built by the local authorities, at least one for each 100 voters, and in no case fewer than three, so constructed that in the marking of his ballot the voter shall be screened from observation. A guard-rail shall be so constructed that no one outside can approach within ten feet of the ballot-boxes or compartments. But neither the ballot-boxes nor the compartments shall be hidden from the view of those just outside the rail. The voter, on receiving a folded official ballot from the election officer, shall go inside the rail to one of the compartments and prepare his ballot by marking a cross opposite the name of the persons to be voted for. He shall then fold the ballot and deposit it in the ballot-box. No ballot that lacks the official indorsement on the back shall be received or counted. Not more than four voters in excess of the number of compartments shall be allowed within the rail at one time. No ballots can be taken from the polling place. Penalties are imposed upon any person who allows his ballot to be seen by another, who shall make any mark upon his ballot by which it may be identified, or who shall interfere in any way with any voter inside the rail. Other acts of the session were as follow:

Providing for an enrollment of all male citizens above twenty years of age in the State on May 15, 1889.

Providing for the assessment in each town and city of an annual poll tax of \$1, or of so much as with other taxes shall amount to \$1, for each person taxed, the proceeds to be used for the support of public schools.

Establishing a system of registration, which requires all voters to register with the town clerk on or before Dec. 31 of each year; but persons already registered, who have paid a property tax of \$1 or more during the year preceding, are not required to register again in order to vote.

Establishing a soldiers' home; appropriating \$50,000 for land and buildings; creating a State board of soldiers' relief, which shall have control of the home; directing that the secretary of such board shall be the State pension agent, who shall aid soldiers in seeking pensions, free of charge.

Providing that the railroad commissioner shall hereafter be appointed by the Governor for three years, and giving him power to summon and pay witnesses.

Raising the age of consent in females to fourteen years.

Establishing, and adding to the organized militia, two companies of naval battalion, to be called the Naval Reserve Artillery and the Naval Reserve Torpedo Company.

The General Assembly, elected in April, met for its first session in Newport on May 28. There was no choice for State officers by the people at the April election, except for Attorney-General. The two Houses, in joint session, elected the Republican candidate, Herbert W. Ladd, for Governor, by a vote of 58 to 48 for John W. Davis, the Democratic candidate, and chose the Republican candidates for Lieutenant-Governor, Secretary of State, and General Treasurer by a similar vote. On May 29 William C. Townsend was chosen State Auditor for the ensuing year, that office being annually filled by election of the General Assembly. On May 30 the submission resolution for rescinding the prohibitory amendment, which was passed by the previous General Assembly in March, was again adopted, and provision was made for a vote on the rescinding amendment at a special election on June 20. The time when the new ballot law should go into effect was postponed from June 1 to June 30, in order that the special election might not be governed by its provisions. The Assembly adjourned on May 31, to meet at Providence in January, but, as the prohibitory amendment was rescinded at the June election, an earlier meeting became necessary. On July 1 a special session was called by Gov. Ladd, to meet in Providence on July 9, for the purpose of enacting license laws. The Assembly appointed on the first day a joint committee of twelve to prepare a measure, and adjourned till July 16. When it reassembled a draft of a bill was presented by this committee, and, after much discussion and many disagreements between the two houses, a license law was passed on Aug. 1, containing these provisions:

The power to grant licenses shall be vested in the town councils of the several towns, and in boards of commissioners in cities, such boards consisting of three members, appointed by the mayors and removable by them for cause. If 10 per cent. in cities, and 15 per cent. in towns, of the voters at the last preceding general election shall petition therefor, a vote may be taken at each April election, in any town or city, on the question whether licenses shall be granted therein. Whatever may be the result of the election, it shall stand until reversed at some subsequent annual election. The license fee for wholesale dealers shall be not less than \$500 nor more than \$1,000. Retail licenses in the city of Providence shall be \$400; in other cities and towns of over 15,000 inhabitants, \$350; in towns of from 6,000 to 15,000 inhabitants, \$300; in smaller towns, from \$200 to \$300. Three fourths of the fees shall go to the cities or towns, and one fourth to the State. Wholesale dealers may not sell to unlicensed dealers, nor become bail for violators of the law. The penalties for violations of the law range from \$20 and costs and ten days in jail to \$100 and costs and six months in jail. Screens must be removed on Sundays. There are no restrictions as to number or location of licensed places, except that a majority of the occupants and owners of the property within 200 feet of a proposed saloon may prevent the issue of a license to such saloon.

The special session adjourned on Aug. 1, immediately after the passage of this act.

Political.—On Feb. 22 the Prohibitionists, in State Convention at Providence, opened the canvass by nominating the following ticket: For Governor, Harrison H. Richardson; Lieutenant-Governor, Joshua C. Brown; Secretary of State, Daniel Howard; General Treasurer, Jason P. Hazard. The platform included the following:

As the present attitude of both of the dominant political parties in this State, as shown by recent and proposed legislative action, gives no hope of efficient temperance laws while the State is under their control, we therefore earnestly invite to our ranks all who agree with us on this one important issue.

We most heartily protest against the resubmission of the Prohibitory amendment, as sufficient time has not elapsed to test its value, nor have faithful officials as a rule been yet elected to secure its honest enforcement.

The Democratic State Convention met at Providence on March 12, and renominated the ticket of last year: For Governor, John W. Davis; Lieutenant-Governor, Howard Smith; Secretary of State, Edwin D. McGuinness; Treasurer, John G. Perry; Attorney-General, Ziba O. Slocum. The following resolutions were adopted:

The ultimate and permanent success of a republican form of government must depend largely upon the respect and support which the people give to the laws of which they are themselves the authors. The fifth amendment to the Constitution, adopted by a vote of less than one half of the voting population, has been, and still is, openly, notoriously, and systematically violated; and, notwithstanding the increased State and local taxation, the lavish expenditure of public money, and the consequent burden upon the tax payer, and threatened financial embarrassment of the State which it has entailed, remains almost universally unenforced. Conservative citizens of all classes, and without respect of party, are calling for its resubmission to the people. The Democratic party therefore demands that the prohibitory amendment be resubmitted to the people, the ultimate and supreme authority. In case it should be repealed by the people, the Democratic party pledges itself, if intrusted by the people with the administration of the Government of the State, to the enactment of such legislation, in the lines of local option and restrictive license, as shall tend to check the flood of intemperance and demoralization which is spreading in the community under the system of free rum and an unrestricted liquor traffic, which now prevails.

We are opposed to the policy pursued by the Republican party of rendering the exercise of the right of suffrage difficult and onerous by unnecessary restrictions upon registration, and advocate the enactment of such laws as shall, by facilitating registration, encourage the exercise of the rights and duties of citizenship by all classes of voters.

We declare ourselves in favor of the adoption and immediate enforcement of such legislation, similar to the Australian system, as shall secure the secrecy of the ballot, and thus diminish the opportunities for bribery and corruption at our elections.

On March 21 the Republican State Convention at Providence nominated for Governor Herbert W. Ladd, and for Lieutenant-Governor Daniel G. Littlefield. Secretary of State Cross, Treasurer Clark, and Attorney-General Rogers were renominated. The platform contains the following:

We believe that it is the duty of the General Assembly to permit the people of the State to pass judgment upon any proposed amendment to the Constitution whenever an opportunity so to do is demanded by any large number of citizens.

We reiterate the demand which has been made in each Republican platform since the adoption of the fifth amendment for the full, zealous, and impartial enforcement of all laws, and especially of the laws enacted to carry that amendment into effect. We condemn those officials, whether Republicans or Democrats, who have willfully failed to enforce such laws.

We approve the action of the Republican Legislature in adopting the Ballot Reform bill, and we call

upon the public officers who will be charged with its execution to strive for its honest and earnest enforcement.

A few days before this convention met, the General Assembly had passed, with the aid of Republican votes, a resolution proposing to rescind the prohibitory constitutional amendment. Both this action and the platform declarations above quoted, indicated a change in the policy of the Republican party toward the amendment, which was strongly opposed by a considerable number of its followers, who believed that prohibition had not received a fair trial. They determined to join with other friends of the amendment in forming a new party to elect State officers who would thoroughly enforce the existing law. Assuming the name of "Law-Enforcement Party," the seceders issued a call for a convention at Providence on March 22. This convention nominated James H. Chace for Governor, Franklin Metcalf for Lieutenant-Governor, J. Barclay Foster for Secretary of State, and Edward A. Greene for General Treasurer. Attorney-General Rogers, the Republican candidate, was recommended for re-election. The platform contained the following:

We are opposed to the resubmission of the fifth amendment to popular vote at the present time as uncalled for by the people, unwarranted by the facts, and not justified by argument. We demand an honest effort to enforce the laws already enacted and to maintain the Constitution as it is. We favor such legislation as experience in other States as well as in our own shows to be necessary in order to enforce Article V of the amendment to the Constitution.

In the few weeks before the April election each of the four parties put forth strenuous efforts. The issue was practically between prohibition and license, with the Law-Enforcement and Prohibition parties on the one side, and the Republican and Democratic parties on the other. The strength of the Law-Enforcement party was unknown. At the election in April no candidate received a majority of all the votes cast except Ziba O. Sloeum, the Democratic nominee for Attorney-General; but the other Democratic nominees obtained considerable pluralities over the Republican candidates. For Governor Davis received 21,289 votes, Ladd 16,870, Chace 3,597, Richardson 1,346; for Lieutenant-Governor Smith received 21,101, Littlefield 17,080, Metcalf 3,559, Brown 1,402. The vote for Secretary of State and General Treasurer varied but little from these figures. For Attorney-General Sloeum received 21,848 votes, Rogers 20,991, with 16 scattering votes. At the same election members of the General Assembly were chosen throughout the State. A majority vote was necessary to elect, and the contest was so close that there was a failure to elect 4 Senators and 12 members of the House. Of the members chosen, 21 Senators and 23 members of the House were Republicans, and 10 Senators and 37 members of the House were Democrats. Under the Constitution it became necessary to hold by-elections in the towns and cities where there had been a failure to elect. At the first by-election 8 of the vacancies were filled by the choice of Republicans, while for the remaining 8 places there was again no choice and a trial became necessary. Of the eight members to be

chosen, six were to be sent from Newport and one each from Bristol and Cranston. At this second by-election the Republicans elected three of the Newport delegation and each of the members from Bristol and Cranston. There was still no choice for three members from Newport, but as no further elections were allowed by law, the three members of the preceding Legislature whose successors had not been chosen (2 Republicans, 1 Democrat) held over for another year. The political complexion of the Assembly, thus finally determined, was as follows: Senate—Republicans 26, Democrats 10; House—Republicans 34, Democrats 38. The Republicans were in the majority in joint session, and the election of the Republican candidates for the State offices not filled by the people at the April election was assured. A large majority of the members were in favor of submitting to the people the question of rescinding the prohibitory amendment.

Prohibition and License.—The report of the Chief of State Police for the four months of this year ending May 7, gives the following figures from the sheriffs and police officers of the State regarding the enforcement of the prohibitory laws during that period: Arrests for drunkenness in the State, 1,724; complaints by officers for illegal sales, 13; for illegal keeping, 54; for common nuisances, 19; seizures, 328; common nuisances believed to exist but not proceeded against, 278.

On June 20 the special election was held to determine whether the prohibitory amendment should be rescinded. Three fifths of the total vote cast was necessary for the adoption of the rescinding amendment; but the tide of popular sentiment set strongly in its favor, and it was carried by a vote of 28,315 yeas to 9,956 nays. The amendment thereby rescinded was adopted in 1886 by a vote of 15,113 yeas to 9,230 nays. The Governor made proclamation of this result on July 1, and at the same time called an extra session of the General Assembly, which on Aug. 1 adopted a high-license law elsewhere considered. This act went into effect at once. Before the end of the year 532 licenses had been granted in Providence, or one to every 222 people; in Pawtucket 133 were granted, or one to every 172 people; in Woonsocket 97, or one to every 167 people; in Newport 78, or one to every 251 people. In 16 towns and cities 1,123 licenses were granted—one for every 228 people.

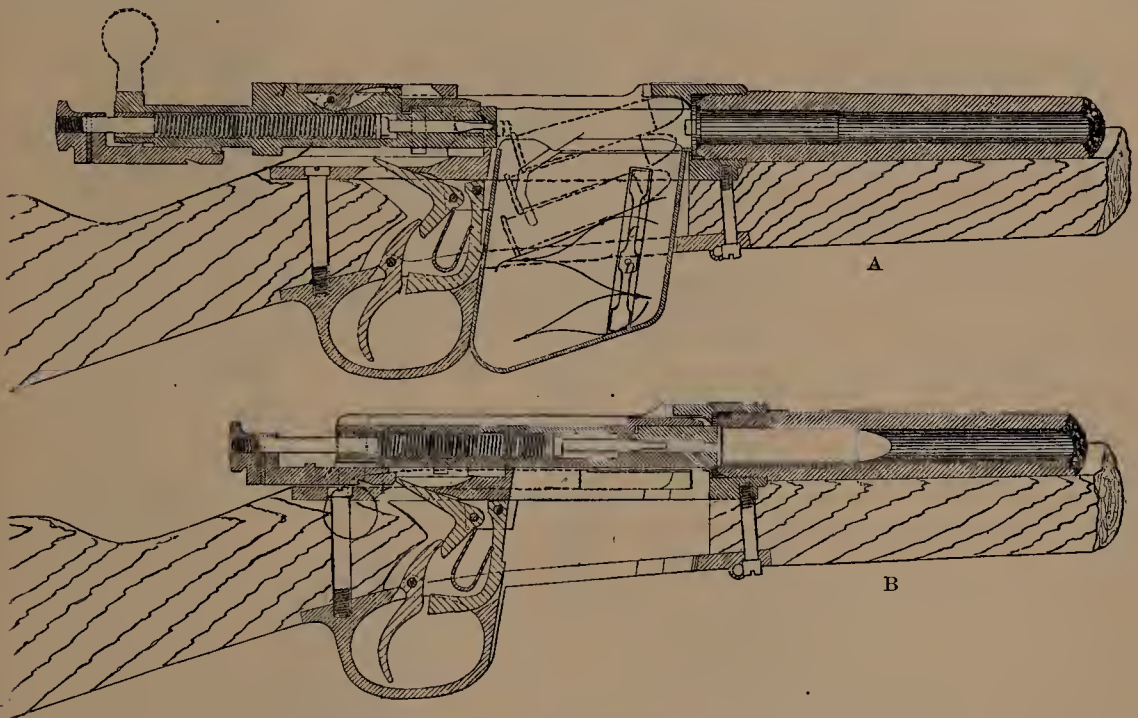
RIFLES, MILITARY. The term "small-arms" ordnance includes military weapons carried by the soldier, and is opposed to heavy ordnance, as cannon, etc. The term is also opposed to machine guns, as the Gatling, Maxim, etc. These latter fire a rapid succession of bullets from a stand or carriage, and are by some called "secondary batteries." Up to September, 1854, smooth-bore muzzle-loading muskets had always been used in battles where small firearms were employed. The first battle after the introduction of rifles was the Alma. There the British troops, under Lord Raglan, were, with the exception of the fourth division, armed with rifles; the French had certain picked corps so armed; the Russians had very few rifles. The Russian loss in three hours was 5,700 men, or nearly one fifth of their entire force, which was about double that of their opponents. Since the Crimean

War, columns have never been actually opposed to lines. Columns can not exist under modern infantry fire, and it is infantry fire that decides the issue.

In 1858 George W. Morse, of Lowell, Mass., sent to England, for trial by the English military service, the first primed, flanged, expansive metallic cartridge ever invented. It was intended to be used in breech-loading small-arms. Morse's invention was tested at Hythe, in September of that year, and the following is an extract from the report of the British officers who condemned the primed cartridge: "The introduction of fulminating powders into cartridges is a dangerous element in their construction, and, for military service, an insuperable objection. The manufacture, the packing, and carriage become alike dangerous, and these alone, the committee concludes, are sufficient reasons for condemning the

ridicule. When Abraham Lincoln became President of the United States (1860) it was the only breech-loader in the hands of troops of any foreign nation. In 1861 the smooth-bore musket and spherical ball had been superseded by the muzzle-loading rifle and the elongated ball. The principle of the rifle was not well enough understood to lead to the general adoption of any particular form of the arm as the best. There was much variety.

Credit is due to the United States as the birthplace of a successful breech-loading system. When the civil war began, the infantry of the United States army had just changed its muzzle-loading rifle. In 1860 the Maynard primer rifle was changed to the percussion cap, despite the protest of Gen. Winfield Scott, and the Springfield rifle, muzzle-loading, was adopted instead. As late as December, 1861, our Chief of Ord-



A, JAMES P. LEE DETACHABLE MAGAZINE RIFLE (AMERICAN PATTERN). BOLT ACTION.
B, THE SAME, WITH SYSTEM OPEN AND MAGAZINE DETACHED.

employment of cartridges with caps attached." Col. Hope, military *attaché* of the British legation at Washington, dissented. There is not now a military firearm in the world, except revolvers, in use in any army in which the combination is not used. The Morse combination made the breech-loading system possible. In 1841, in Prussia, some Dreyse breech-loading needle-guns, paper cartridge, were adopted. This has been termed the original of the modern military rifle, but its existence did not disturb the equanimity of nations using muzzle-loaders. The needle-gun was criticised because it permitted the escape of gas at the breech, and because it was possible for a soldier to waste his ammunition; the latter especially was looked upon as a fatal defect. For more than twenty-two years the soundness of the criticisms of the Dreyse needle-gun was scarcely questioned. The faults of the arm were apparent, and the weapon was the subject of

nance condemned the Spencer and the Henry system because these breech-loaders required a special kind of ammunition which had the fulminate, or priming, in the cartridge itself. Gen. James Ripley also said, substantially, that, "Considering the rapidity of discharge attainable from all breech-loaders, and the inconvenience from the additional weight of the additional cartridges in the ordinary use of a magazine gun, but little advantage could be derived from any repeater."

Despite the obstructive policy mentioned, Americans concentrated their minds upon improvements in implements of war, and demonstrated the superiority of their inventive capacities and manufactures. After the "Trent" affair, Nov. 8, 1861, Queen Victoria issued a proclamation prohibiting the further exportation of ordnance and ordnance stores from England. Although the order suspending the delivery of

foreign-made small-arms was rescinded Jan. 17, 1862, the influx was checked by this affair.

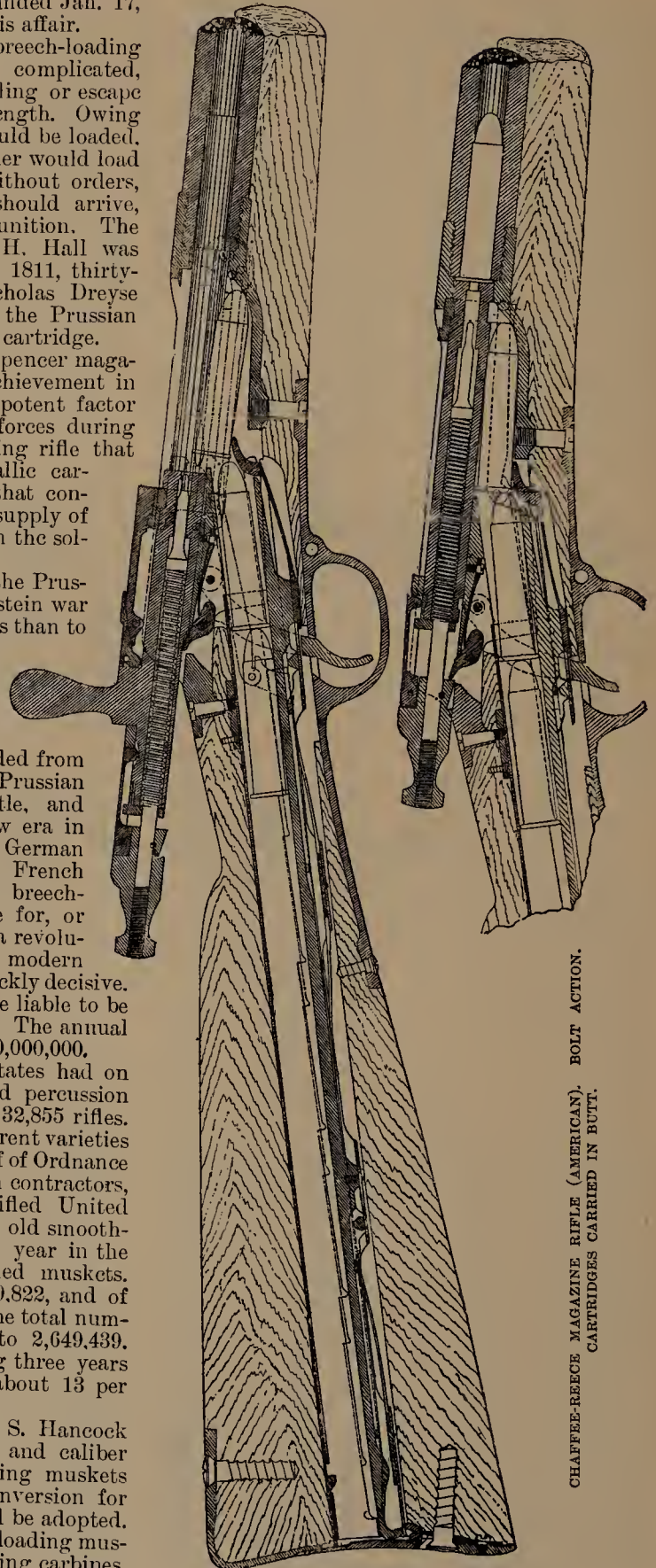
At that time the objections to breech-loading small arms were that they were complicated, liable to get out of order from fouling or escape of gas at the joints, and wanted strength. Owing to the facility with which they could be loaded, it was asserted, in battle the soldier would load and fire without reflection, or without orders, and when the decisive moment should arrive, he would have exhausted his ammunition. The breech-loader invented by John H. Hall was patented in the United States in 1811, thirty-four years before the Jean Nicholas Dreyse breech-loader was introduced into the Prussian service. It did not have a metallic cartridge.

After the civil war began, the Spencer magazine gun proved an important achievement in small-arms ordnance, and it was a potent factor in the triumph of the national forces during 1864-'65. It was the first repeating rifle that was tested in battle, using metallic cartridges. A magazine rifle is one that contains in itself, or attached to it, a supply of ammunition independent of that in the soldier's belt or pouch.

Eminent military men felt that the Prussian success in the Schleswig-Holstein war (1864) was due more to their soldiers than to their breech-loading rifles. In 1866 the repeated success of the Prussians with their Dreyse breech-loaders over the Werndl rifle of Austria occasioned a rush by important military powers for small-arms loaded from the breech. During these wars the Prussian breech-loader was tested in battle, and opened—as wars always do—a new era in tactics. So, too, in the Franco-German struggle of 1870-'71, when the French troops were also equipped with a breech-loader, the Chassepot. The desire for, or the dread of conquest necessitated a revolution in matters of ordnance. All modern wars have been short, sharp, and quickly decisive. There are 28,000,000 men in Europe liable to be drawn into the next European war. The annual public cost for their support is \$600,000,000.

On March 4, 1861, the United States had on hand 336,788 smooth-bore flint and percussion muskets, 73,544 rifled muskets, and 32,855 rifles. In addition we owned nineteen different varieties of breech-loading carbines. The Chief of Ordnance purchased, in open market and from contractors, 1,055,862 foreign rifles, 670,617 rifled United States pattern muskets, and 113,034 old smooth-bores. There were fabricated that year in the United States armory 805,537 rifled muskets. The total of smooth-bores was 449,822, and of rifles 1,559,698. By June 30, 1866, the total number of small-arms had increased to 2,649,439. The losses by wear and tear during three years of active warfare were for infantry about 13 per cent. per annum.

In January, 1866, Gen. Winfield S. Hancock was directed to report what form and caliber should be adopted for breech-loading muskets and carbines, and what form of conversion for muskets from muzzle-loading should be adopted. After testing 22 varieties of breech-loading muskets and 17 varieties of breech-loading carbines,



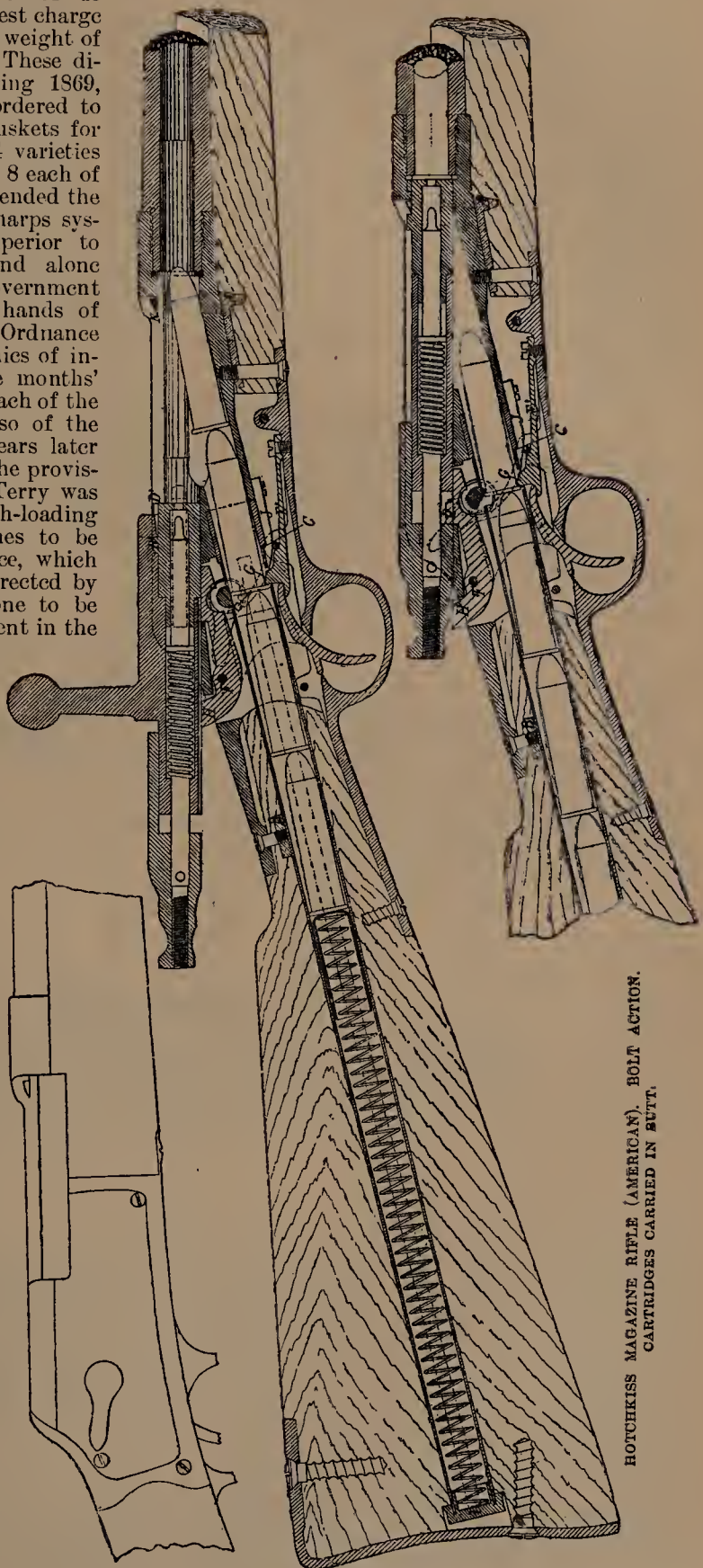
CHAFFEE-REECE MAGAZINE RIFLE (AMERICAN). BOLT ACTION. CARTRIDGES CARRIED IN BUTT.

Gen. Hancock reported in favor of .45 caliber for muskets, and the best charge of powder from 65 to 70 grains, weight of ball from 480 to 500 grains. These dimensions are now used. During 1869, Gen. John M. Schofield was ordered to select the 6 best patterns of muskets for infantry. After examining 34 varieties of breech-loading muskets and 8 each of carbines and pistols, he recommended the Remington, Springfield, and Sharps system of breech-loading, as superior to others in the order named, and alone superior for adoption by the Government without further trial in the hands of troops. In 1870, the Chief of Ordnance placed in the hands of companies of infantry and cavalry, for twelve months' trial, muskets and carbines of each of the above-named systems, and also of the Ward-Burton system. Two years later Congress passed an act under the provisions of which Gen. Alfred H. Terry was ordered to recommend a breech-loading system for muskets and carbines to be adopted for our military service, which system, when adopted, it was directed by Congress should be the only one to be used by the Ordnance Department in the manufacture of muskets and carbines for the military service. After the trial and examination of 99 varieties, besides 9 varieties of breech-loaders in use by foreign nations, Gen. Terry (in May, 1873) recommended that the Springfield breech-loading system be adopted for the military service of the United States. We still adhere to that system.

Some of the foreign systems examined by Gen. Terry were the Martini-Henry (English), Chassepot (French), Dreyse needle (German), Mauser (Prussia), Werndl (Austrian), Berdan (Russian), Vetterli (Swiss), and Werder (Bavarian), also, the Spanish Remington. Four of these nine varieties named were of American origin.

The weight of the Springfield rifle decided on was 8.38 pounds, and the trigger was adjusted to pull off at from six to eight pounds.

In February, 1881, Congress appropriated for the manufacture of small-arms at national factories \$300,000. Of this amount, \$50,000 was directed to be expended in the manufacture or purchase of magazine guns, to be selected by a board of officers to be appointed by the Secretary of War. Forty guns were submitted. The principal ones were the James P. Lee, Chaffee-Reece, Hotchkiss, Spencer-Lee, Mar-



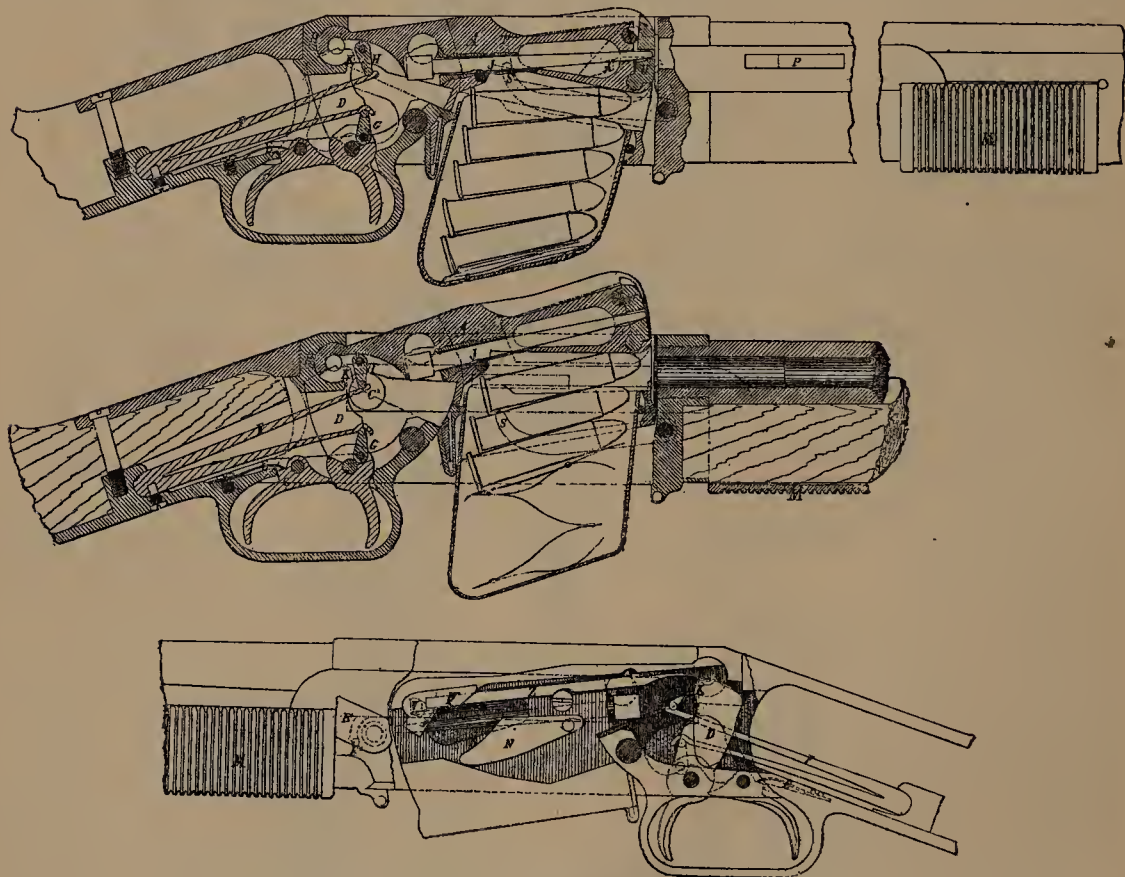
HOTCHKISS MAGAZINE RIFLE (AMERICAN). BOLT ACTION.
CARTRIDGES CARRIED IN BUTT.

mini, Remington-Keene, Burton, Springfield-Jones, Elliott, Dean, Russell-Livermore, Trabue, and Boch. Two foreign guns were presented by Joseph Schulhof, of Austria, and F. Vetterli, of Schaffhausen, Switzerland. The board reported that the Lee, the Chaffee-Reece, and the Hotchkiss possessed efficiency as single-loaders, and considering safety, ease of loading, rapidity of fire, endurance, moderate weight, and simplicity of construction, it recommended them in the order named. The Spencer-Lee was mentioned as possessing novel and meritorious features.

Ten years ago Switzerland was the only country whose forces were armed with a repeating rifle. The lapse of ten years finds six of the nations mentioned feverishly engaged in changing their small-arms system. When one cal-

that, from the little that can be learned of the magazine systems abroad, he is persuaded that nothing is to be gained by haste at this juncture, as the Springfield will continue to serve the purpose and the best interests of the army long enough to enable the determination finally on a magazine gun that will do credit to the inventive genius of the people.

For more than twenty-five years Americans have been engaged in improving the Springfield rifle and its ammunition. Its parts are interchangeable, and it has been tested by extensive, accurate, and well-designed experiments. To ascertain its tensile strength, the barrel of the Springfield rifle has been filled with lead so tightly secured that the service charge—seventy grains of gunpowder—when exploded in the



SPENCER-LEE DETACHABLE MAGAZINE RIFLE (AMERICAN). BREECH BLOCK.

culates the expenditure involved in buying or making half a million rifles, the immense cost of rearming a nation with small-arms becomes appreciable. The Springfield rifle costs \$13.12, the Lee \$14.12, the Hotchkiss \$16.58, the Chaffee-Reece \$33.35.

The Lee, Chaffee-Reece, and Hotchkiss magazine guns were issued to selected companies of our army for trial by troops. After a careful consideration of the reports rendered, Gen. Benet, Chief of Ordnance, reported to the Secretary of War, December, 1885, that he was satisfied that neither of these magazine guns should be adopted and substituted for the Springfield rifle. He has since reported that an effective and simple magazine gun has become a necessity, but

chamber, was unable to move the mass of metal in front of it, and yet no rupture of any kind was produced. This proves that the barrel is able to stand at least 43,000 pounds to the square inch. It has been tried with charges of compressed powder, smokeless propellents, perforated cartridges, Hebler cartridges, and every conceivable variety of projectile.

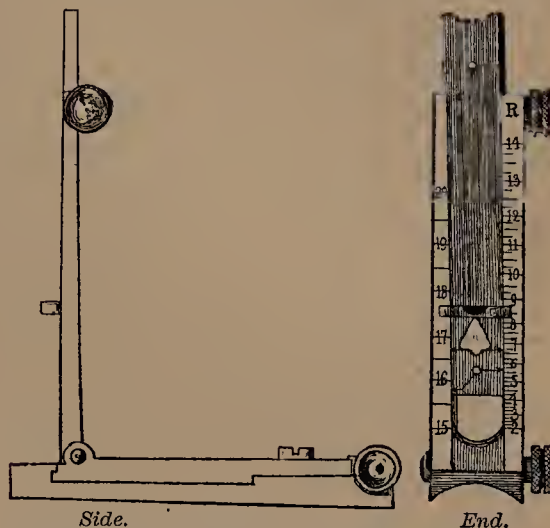
To European nations, these incessant changes of rifle, ammunition, etc., are almost synonymous with bankruptcy. France, Austria, Italy, Belgium, Portugal, Prussia, Germany, and England have either adopted, or are about to adopt new or converted rifles, with calibers varying but little from .31-inch.

When the United States Ordnance Depart-

ment experimented to find out the effect of increasing the length of barrel of the Springfield rifle, it was found that with a barrel 112 inches long, using 70 grains of powder and regulation bullet, there was scarcely any smoke and very little noise accompanying the explosion, while with a barrel only 5 inches in length there was a cloud of smoke and a deafening noise. These phenomena are natural results of the complete combustion of the charge in the bore. In the near future the common black gunpowder will be entirely superseded as a motive force in guns. It is time that the mechanical mixture known as gunpowder, which was used in battle by the Chinese in the year 1232, and has practically been used in all portable firearms ever since, should be superseded by a chemical mixture, smokeless, noiseless, odorless, stable, without recoil, and a more powerful pusher than gunpowder. The term "pusher" is used advisedly; there is a difference between a blow and a push; we want a pushing propellant for our rifles, not a rending explosive. Using the Springfield rifle and service ammunition, the penetration at ranges of 3,500 yards is about three inches in pine wood; energy corresponding to a penetration of one inch in pine is held to be sufficient to inflict a wound dangerous enough to put a man out of action. For reasons both humane and politic it is better to wound a man in action than to kill him. The time of flight for the Springfield bullet in traversing 3,000 yards is seventeen and three quarter seconds.

An entire chapter could be devoted to the subject of the motion of bullets. In the barrel of the Springfield rifle are three grooves; they are inclined to the axis of the barrel; the twist is uniform from left to right, that is, the groove on the top turns from the left to the right, and makes one turn in 22 inches. The bullet in moving through the barrel thus receives a motion of rotation around its longer axis. When it reaches the muzzle, the points on the surface have an axial motion of 92 feet a second. In

yards, it is $11\frac{1}{2}$ inches; at 300 yards, it is over 5 inches; at 200 yards it is exactly 3 inches; and at 100 yards, it is over 1 inch. Until 1884, drift was compensated for by the lateral adjustment of the



BUFFINGTON REAR SIGHT FOR U. S. SPRINGFIELD RIFLE. ARRANGED TO CORRECT AUTOMATICALLY THE DRIFT OF THE PROJECTILE.

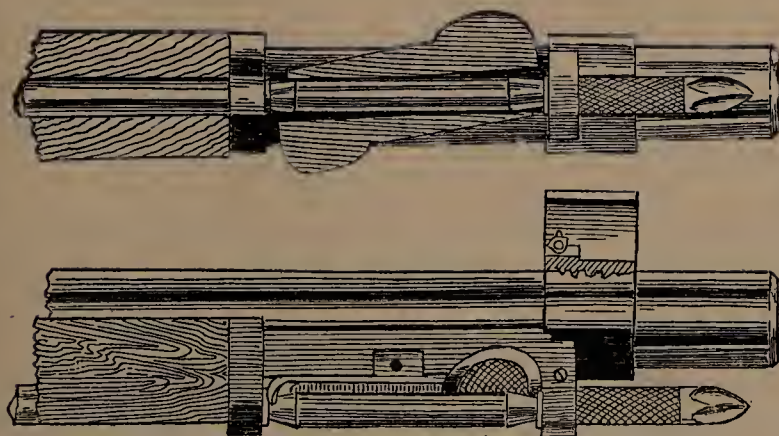
slide upon the rear sight. Of course, the slide had to be moved slightly to the left. For this lateral adjustment of the sight, a knowledge was requisite of the force or velocity and direction of the wind, and of the value of one point on the wind-gauge in overcoming the motion of the bullet, due to drift and the wind, at different ranges. A wind blowing directly from the front (that is, from the direction of the target), is called a twelve o'clock wind; one directly from the left and across the line of fire, a nine o'clock wind, and so on. In 1884, Col. Adelbert R. Buffington, U. S. A., invented a rear sight which has since been used for the Springfield rifle and carbine.

When the sight is adjusted for the necessary elevation, it automatically corrects for drift. As at 200 yards, the drift of the rifle bullet is 3 inches to the right, the Buffington sight causes the soldier to aim nearly $\frac{1}{4}$ point to the left of the objective. At 200 yard range, 1 point of the wind gauge compensates for a wind acting at right angles to the plane of fire with a velocity of about 8 miles an hour for rifle firing, and about 10 miles an hour for carbine firing.

Breech-loading rifles may be divided as follows: 1, single-loaders, like the Springfield; 2, single-loaders and

repeaters combined; 3, single-loaders with magazine attached; 4, repeaters with no cut-off to the magazine, like the Winchester and the Austrian Manlicher; 5, experimental repeaters; 6, detached magazines, like the James P. Lee gun.

Repeating rifles may be divided into: 1, those



MUZZLE END OF UNITED STATES ROD-BAYONET, SPRINGFIELD RIFLE.

plain language, it *spins*. A lateral motion of the entire projectile results. Its direction is determined by the rifling. As this latter is from left to right, the bullet deviates to the right of the plane of fire. This deviation is called "drift." At 600 yards, the drift is over 16 inches; at 500

whose magazines are in the butt; 2, those whose magazines are under the barrel; 3, those whose magazines are over the barrel; and 4, those whose magazines are under the breech. With reference to the four sub-divisions, or classes, last named, the Spencer rifle belonged to the first class; no nation now uses a repeater of the first class. The Winchester rifle belongs to the second group. The Bethel-Burton belongs to the third class, but no nation now uses a repeater of this kind. The James P. Lee belongs to the fourth class. All of these rifles are American in their origin and development. The military rifles adopted by European governments are briefly enumerated below, in the alphabetical order of the countries.

Austria.—The old type of Austrian bullets belonged to the class of solid expanding projectiles—caliber, .547; length of bullet in calibers, 1.84; weight of bullet, 450 grains; fired from a barrel having one twist in 62 inches. In these old-pattern rifles, Austria utilized the invention of Col. Thouvenin, consisting of a spindle attached to the breech screw, which fitted into the bullet as the finger into a thimble. This was not to aid in the expansion of the bullet, but to give it an invariable position with reference to the powder, and thus secure uniformity of action. Then came the breech-loading Werndl rifle, weight 9.04 pounds, having a cartridge weighing 655 grains. No rifle of the Werndl class now exists, so far as known. Its peculiarity consisted in the fact that the breech-block rotated about an axis parallel to the axis of the barrel and below it. About 1877 Austria adopted a new cartridge for the Werndl, and, by the change, passed from one of the lowest to the highest position in Europe in the order of merit of military rifles. In 1885 the great arms factory at Steyr began to work night and day at the manufacture of the Manlicher repeater. The Lee gun, the invention of an American, can be used either as a single-loader or as a repeater. It has a detachable magazine; each magazine holds five cartridges, and when it is desired for use as a repeater, the magazine is placed in a hollow frame beneath the breach. The manipulation of the Lee involves a straight backward and forward motion, so that the gun may be fired again and again without taking it from the shoulder. It is claimed that a full magazine can be substituted for an empty one in two seconds. The balance of the piece is not disturbed each time that the gun is fired, as is the case in the other magazine systems, where the cartridges are carried either in the butt or under the barrel. Both Austria and Austria-Hungary have discarded the Werndl rifle and have adopted the small-caliber Manlicher, which is an obvious plagiarism upon the old-style Lee. The disadvantage of the Manlicher is that it can not be used as a single-loader. The improved Lee is free from this grave drawback. The Manlicher adopted by Austria in 1885 had a caliber of .433; weight of bullet, 371 grains; twist, one turn in 21.6 inches; length of bullet, 2.33 times the caliber. In 1889 Austria adopted a more effective explosive and an improved cartridge, and began experimental trials with Herr Schulhoff's improved small-caliber Manlicher, and also with the Fortelka, the Jurmitschek, and the Salvatore

magazine guns. The result was the adoption of the caliber .31 Manlicher and a compound projectile covered with steel. Those covered with copper or nickel proved too expensive. At an immense cost the transformation was effected and the armament of the Austrian infantry completed. Herr Nordenfeldt imported the machinery for the manufacture of these small-arms, and set up a factory at Pesth, Hungary, for the manufacture of the rifles, guaranteeing 400,000 to be delivered in two years. Hungary allotted the land on which the factory was built free of rent, and exempted the property from taxes for fifteen years. The Fortelka rifle is the invention of a blind man. It is claimed that the rotary velocity of the bullet fired from this rifle is about 1,800 turns in a second. The Kropatschek tubular magazine seven-shot repeater is made in Austria. This rifle has been adopted by Chili and Portugal, and also by the French navy. France is producing arms on her own account, and the adoption of the Kropatschek of Austrian make by that country is singular.

Bavaria.—Although Bavaria is a part of the German Empire it is here considered separately because of its separate armament and because it was not until after the seven weeks of war with Austria in 1866 that the Bavarians succumbed to the homogenous power of Prussia and became imbued with the principle that the strongest power should have the sway and Bavarians put away the local hatred fostered in past times and forgot and forgave everything for the sake of a common fatherland. The success of the French Chassepot in 1870-'71 would have meant, the Bavarians knew, the restoration of the Rhenish confederation and the political impotency of all Germany.

In 1846 the Warendorf breech-loader was invented, but it was too slow in action to be long retained. Different systems of breech-loading arms have been tried, accepted, and abandoned in Bavaria since Germany first used them in warfare. It was not until after 1866 that south Germany began to organize according to the Prussian system and to introduce Prussian tactics and regulations. In that year Baden and Wurtemberg had adopted the Dreyse needle-gun and the Prussian drill. The Bavarian infantry then carried a different rifle—the converted Podewills. In 1869 the Bavarian army adopted the Werder rifle, the alleged invention of J. L. Werder, of Nuremberg. This rifle belonged to the class of falling breech-blocks, of which the Peabody, the invention of a Boston man, was the exponent in this country. The caliber of the Werder was .435 inch; length of barrel, 35 inches; twist, one turn in 22 inches; weight of piece, unloaded, 9.75 pounds. The Bavarian rifle factory at Hamburg is reported to be working in feverish haste on a new weapon of reduced caliber. Exact data can not be given, but it is said that it differs from most other guns of its class, as the breech-block is opened and closed by the hammer instead of the lever-guard, giving, it is claimed, greater safety and ease of manipulation, especially when the soldier loads while lying on the ground.

Belgium.—The system of alteration of breech-loaders adopted in March, 1867, by the Belgian Government was the Albini-Braendlin, and

closely resembled the Springfield system of the United States. In appearance, this rifle is like the Muir-Montstorn; the breech is closed by a block, which turns over on the top of the barrel for loading. The bore was .443 inch when the arm was first adopted (that is, seven decimals smaller than the Martini-Henry), but it was subsequently increased so as to take the .577 Snider cartridge. The Albini-Braendlin was succeeded by the Fosberry rifle, carrying the Berdan brass-drawn cartridge, the same as the Russian. This cartridge is the invention of an American. About fifteen years ago the Belgian volunteers were armed with the Comblain single-shot breech-loader of the pattern now in use in Brazil.

King Leopold ordered 100,000 Nagant, caliber 31, magazine rifles to be made at the small-arm factory at Liège and at Lutich. The Nagant is similar to the Manlicher, which, in turn, is a modification of our Lee gun. The Brussels military journals give results of recent tests made there with the French Pralon magazine rifle. The energy concealed in a million rifles of the latest improved pattern commands respect. The hatred and the dread and the jealous rivalry of nations is indicated by one significant fact. For news items about the French armament, one has only to read the "*Deutsche Heeres Zeitung*." For facts and details concerning Prussian ordnance, one refers to the "*Revue du Cercle Militaire*" or the "*Revue Militaire de l'Étranger*." "*La Revue Militaire Belge*" (Brussels) reports that Germany has obtained specimens of the French Lebel gun, with samples of the cartridges and smokeless powder belonging to it, and has manufactured copies of them. In order to find out what any nation of military importance is doing in the way of armament, it is only necessary to read the journals of a rival nation. The most misleading and absurd, even impossible, statements are being constantly published. Thus the game of menace and bluster goes on. The patriotism and the passions of the masses are adroitly played upon in order to obtain the means to pay for new munitions of war.

Denmark.—The question of the adoption of a small-caliber rifle has been settled affirmatively in Europe. The status of peace or the result of war throughout Europe depends upon the rifle used. Denmark was one of the first nations to devote attention to an 8-millimetre, or .31-inch caliber cartridge, using compressed powder and a leaden ball coated with copper. According to the "*Vort Forsvar*," the initial velocity of the new rifle is 1,700 Danish feet a second, and a rotary velocity of 1,800 turns a second is claimed for this bullet fired from the new Danish rifle, which is a combination of the American Lee magazine, with a small-caliber barrel. It is called the Hebler Lee.

According to a recent number of the semi-official "*Berlingske Tidende*," the new repeating rifle of Capt. Wadsen and Lieut. Rasmussen is to be introduced in the Danish army. In this rifle the barrel is not fixed to the stock, but is secured by a spring. In firing, the barrel is forced backward, by which motion the bottom plate of the breech is opened, the empty cartridge ejected, and a fresh cartridge put forward into its place, the magazine holding six cartridges. This principle is not original with, or peculiar

to, the inventors named. Thirty years ago, two Americans, named William Garduer and Helm, patented breech-loading guns, each having fixed chambers and movable barrels; the barrel of the Gardners slid forward and backward on ways connected with the butt stock. The Helm had a fixed chamber closed by a movable barrel. Another peculiar feature of the arm, which Denmark does not appear to have imitated, was the connection of the tumbler with a movable butt plate so arranged that by pressing the piece against the shoulder, in aiming, the hammer was simultaneously cocked. The Danish War Department announces that, by coating the leaden ball with copper and by pressing the powder in the cartridge, a velocity of 150 feet above any mentioned by the Austrian Minister of War has been obtained. The Austrian Manlicher (model of 1885) has an initial velocity of 1,575 feet a second. Assuming the statement of the Danish minister to be correctly reported, the copper bullet has an initial velocity of 1,725 feet. The Danish army of 35,000 men was formerly armed with the Remington rifle. Had Denmark been provided with this rifle in 1864, Prussian success would have been doubtful.

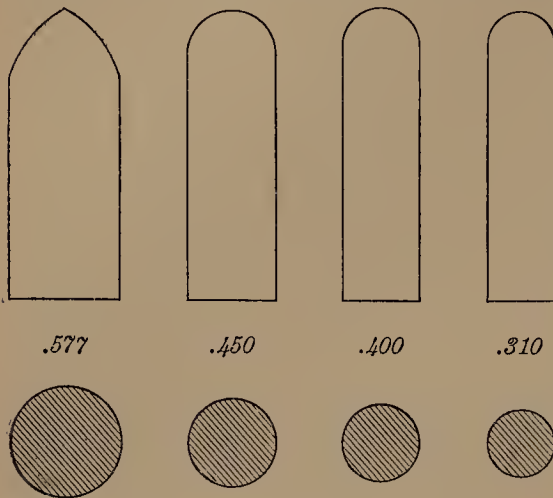
On Oct. 13, 1887, at the West-Side Driving Park, Chicago, at the 200-yards, all-comers, individual rifle competition, the Scandinavian service rifles in the hands of Hjalmer Levi, Lieut. Land, and Sergeants Jorgensen and Heminsen, of the Danish service, failed to demonstrate any claims to superiority over the Springfield. Regarding the weapons merely as single-shot rifles, the Enfield-Martini, the Berdan, and the Jarman were unquestionably of the best, if not the best, large-calibered rifles in military service in Europe. Their power is limited only by the power of the shooter to withstand the effect of recoil and to use a heavy piece. The momentum of the bullet, up to the time of its leaving the muzzle, is equal (neglecting the weight and motion of the gas generated by the gunpowder charge) to that of the gun backward at any instant. Supposing the gun to weigh 150 times as much as the bullet, it will acquire a velocity against the shoulder equal to the one hundred and fiftieth part of that acquired by the bullet. This velocity measures the severity of the recoil, and the heavier the gun and the more powerful the shooter, the more momentum can he afford to impart to his bullet. The limit of power lies in the recoil when ordinary gunpowder is used.

England.—The engravings on page 742 illustrate the caliber and lengths of the English small-arm bullets since spherical ones were superseded by elongated projectiles, .31 being the caliber of the new magazine rifle whose adoption for the British service will soon be made public.

England thus hopes to obtain from the rapid change of small-arms armament and projectiles all the advantages claimed for the French Lebel and the German Hebler rifles. The caliber .577 was used with the Snider cartridge; the caliber .310 projectile will be used with the Metford Lee magazine gun.

The American Lee system has been adopted by the committee appointed to select a magazine gun for England. The "*Broad Arrow*," of Jan. 14, 1888, says: "The conclusion arrived at by the committee is that the Metford system of

rifling with the Lee bolt-action and Lee detachable magazine is to be the pattern of our future small-arm." The "Army and Navy Gazette" adds: "The new arm is of the same length as the



present service rifle, carries the oil-bottle and rag in the butt, and weighs, with its magazine, only 9 pounds 3 ounces. The caliber is .303 inch; the bullet, cased with copper, weighs 217 grains; and the charge is 77 grains of compressed powder. The magazine, which is detachable at will, holds eight cartridges, and lies just in front of the trigger-guard and under the action. There is no perceptible recoil; this fact alone, apart from its other good qualities and general handiness, should commend the new weapon to our soldiers. Six hundred rifles have been issued for the experiment at Aldershot, in which a smokeless compressed powder is to be used." Thus the American invention, the Lee, stolen by Austria, and renamed the Manlicher, and adopted by Austria, Austria-Hungary, Belgium, Denmark, and Mexico, has received the further approval of Great Britain. The Lee rifle was fully tested and reported upon during the autumn of 1872 by the small-arms ordnance board, whereof Maj.-Gen. Alfred H. Terry, United States army, was president.

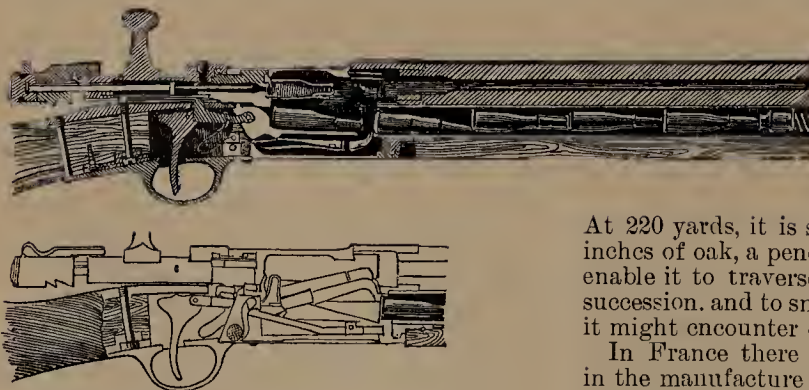
France.—When the German military authorities first engaged in their hurried and unsatis-

abandoned the Gras single-loader (model of 1874), and rejected the Chalon, and, in October, 1888, it was given out that the French troops had been re-armed with a very small-bore repeater named after its inventor, Lebel (model of 1886). The exact pattern of the arm was jealously guarded, and an ignorant enthusiasm became wide-spread regarding the properties of the smokeless chemical propellant and hardened lead or steel-coated or ferro-nickel compound projectile used in the soundless Lebel cartridge. The Lebel, it was said, was without recoil, and the new propellant, made by Capt. Vielle, non-fouling, non-heating, stable, and giving a pressure of 34,800 pounds to a 232-grain projectile and initial velocity of 2,020 feet a second. Bismarck is alleged to have said that the best guarantee of peace with France lay in the deliquescent properties of the Lebel powder. The French Minister of War published a sufficient description of the weapon in "Instructions sur l'armement l'infanterie." The Lebel is a bolt-action weapon, a modification of the Kropatschek, in use in the French navy since 1878. The principal modification is in the caliber, which has been reduced from .472 inch to .315 inch. The magazine is parallel with the barrel and below it. The cartridges are placed end on end. A spring, with a button on the end, forces the cartridges toward the rear into a species of spoon, by which the cartridge is raised into the chamber by the action of the sliding breech-block. A detent prevents the next cartridge from finding its way under the spoon. By means of the thumb button, the repeating mechanism can be locked, and the rifle can then be fired as an ordinary breech-loader. The locking and percussion mechanism are identical with those of the Gras rifle. The weapon measures over all, with the sword bayonet, 4 feet 3½ inches, and weighs 9½ pounds with eight cartridges in the magazine. The barrel is externally of five faces, and is rather thicker than usual. It is 29.33 inches long. Its interior is rifled by means of four grooves, each .15 millimetre in depth, and the twist is from right to left. Measured from the bottom of the grooves, the caliber is .3149 of an inch. The rifling has a twist of 1 in 9.449 inches. The bullet, which is of hardened lead or low-grade steel coated

with nickel, is 1.181 inch long, and weighs 231.48 grains. The bayonet has a straight, grooved blade of quadrangular section, and is 20.47 inches long. It can be used as a hand weapon, and is provided with a nickel-plated hilt.

At 220 yards, it is said, the bullet can pierce 15 inches of oak, a penetration that would probably enable it to traverse the bodies of three men in succession, and to smash through every bone that it might encounter on the way.

In France there are 8,200 machines engaged in the manufacture of this weapon. France imported from the United States the original plant for making the Lebel. The daily output has been 1,600. Before Nov. 1, 580,000 rifles were made and delivered. No rifle is delivered until 5,000 cartridges are ready for it, and there are 14,000,000,000 cartridges stored in the magazines



FRENCH LEBEL MAGAZINE RIFLE. BOLT ACTION.
UNDER-BARREL, TUBULAR SYSTEM.

factory conversion of the single-loading Mauser into a clumsy under-barrel fixed, tubular, spring-fed, slow-charging magazine arm, France

throughout the country. The most stringent precautions have been adopted to prevent unauthorized persons from obtaining possession of any of the new powder, the exact composition of which is now the sole secret connected with the Lebel rifle. Any cartridges that are temporarily in the hands of troops have to be examined and counted by a commissioned officer at intervals of three hours, and it is said that it has been announced that the punishment for opening a cartridge will be imprisonment for ten years with hard labor. The French private is not supposed to know even the color of the propellant that he uses. It is said that the new powder absorbs humidity, and that it is unstable, especially in hot climates. To test this point, the German Government is said to have obtained and analyzed specimens of the chemical powder, and to have sent out a quantity to be experimented with in the German settlements in Africa. Schultze's powder, like sawdust powder, contains a species of gun-cotton made from wood, mixed with other combustible substances. It produces but a mild report, and leaves little or no residuum to foul the piece. These are all decided advantages for a sporting powder, and in many cases would be desirable in a military powder; but, unfortunately, these powders sometimes develop such abnormal pressures as to burst the gun, and this is a condition more likely to obtain in military rifles than in fowling-pieces, which are discharged so infrequently that the barrel remains cool.

The extent to which the propelling force of the Lebel powder exceeds that of the old-time military gunpowder is unquestioned. Smokeless powder originated in America more than ten years ago, only to be brought to the attention of the world in foreign countries, and, as usual, France has taken the lead in utilizing it; but its practical use, like that of a new arm, is of doubtful value unless her fighting machines are called upon to employ such soon. The fighting machine of any nation is the product of two factors, the gun and the soldier; but the rapid development in ordnance matters is such that scientific investigation and practical mechanics may, probably will, soon render both the Lebel and its cartridge obsolete. This fact has not deterred France from changing its arm-caliber, projectile, and propellant—a change that most modern nations have imitated or will imitate. The length of the Lebel bullet, it will be noted, is greatly in excess of its diameter. A projectile of such dimensions can only be prevented from upsetting and be given steadiness in its flight by increasing its rotation. This can only be effected by increasing the twist. The effect of increase of twist and decrease of caliber is to increase the retardation. The Lebel bullet is said to revolve at a speed of 1,000 revolutions a second. At an elevation of 15° a range of nearly 3,800 yards is claimed for the Lebel. It is deficient in "shock," as all light bullets are. The Lebel powder is light brown. When first made it has the appearance of large sheets of glue, which, for small arms, is cut into square grains, and for guns of large caliber into long strips, which are packed in the gun like wax tapers in a box.

Germany.—The adoption by Austria of the small-caliber .31 Manlicher repeating fixed maga-

zine rifle in place of the single-loading Werndl, and the introduction by France of the Lebel pattern in place of the Pralon, Tramond, Ems, Flechter, or Gras (model of 1874), may or may not have been determining causes in the alteration by the Germans of the 11-millimetres caliber Mauser to an arm of repetition. The Mauser, when originally manufactured at Ilion, N. Y., was a single-loader. It is now made at Oberndorf-on-the-Necker, Germany. When adopted by the Germans, after the war of 1870-'71 with France, it was a modification of the Chassepot system adopted to the use of the metallic gas-check cartridge as a substitute for the Dreyse needle-gun, which used a paper cartridge. The Mauser has a fixed chamber closed by a movable breech block to slide in the axis of the piece by direct action—i. e., a bolt moved by a concealed lock. At first the Germans attempted to alter the Mauser into an arm of repetition without decreasing the caliber, .433 inch, having a tubular magazine under the barrel, after the American Winchester pattern; but the ballistic properties of the converted arm proved so far behind the modern standard that a total change of small-arm armament became necessary. American inventors instituted suits for reclamation and damages, claiming that the gun machinery used was made after the drawings of American inventions protected by patents. When the inadequacy of the converted Mauser was found to be due to defects inherent in the rifle itself—the chief fault being its too great caliber and the alleged fact that its extreme range was only 3,250 yards—it is said that 700,000 stand were sold by the German authorities to Turkey, Roumania, and China, at a large reduction in price, and the manufacture of 800,000 additional magazine rifles of caliber 8 millimetres carrying a projectile weighing 386 grains, was begun. The Mauser cartridge head is solid, and has an exterior primer invented by Col. Hiram Berdan, an American. Skilled workmen were employed night and day in turning out the new-converted Mauser, with which to give the German troops an assured military superiority and moral force. Some authorities place the number of these altered magazine rifles of the second lot converted at 1,500,000, and indicate the contract price paid, apart from the original value of the unconverted Mauser, at \$5.45 per gun.

German mechanics failed on the second trial to make as good an arm as was hoped for. This was accounted for by their alleged imperfect knowledge of the machinery employed, which was of American inception, and the weapon was discarded. Germany then found that she had not suitable powder and bullet. The relation between the propellant, caliber, and projectile, and requisite ballastic properties of the rifle itself, rather than economic considerations, were earnestly and thoroughly studied with a view to obtaining the proper relation between the arm, charge, caliber, and bullet. A German commission on small arms was appointed, and held frequent secret sessions, to decide upon a magazine gun to supersede the Mauser.

In the matter of projectiles, systematic and exhaustive experiments were made with bullets of harder metal than any compound of lead, as steel of various grades, solid copper, nickel, etc. The

Rubin bullet consists of a copper or nickel skin, not soldered to an inside lead core; the Lorenz bullet is soldered to the lead core and consolidated by hydraulic pressure into one solid homogeneous mass. The caliber investigations and projectiles of Prof. Hebler were considered. Herr P. Saleher and Herren Mach made instantaneous photographs of bullets having a velocity of 1,730 feet a second to determine the waves formed in the air displaced by the motion of various kinds and shapes of small-arm projectiles. These and other interesting experiments were made at the Spandau Firing-School, organized in 1854 for the study and practice of arms and ammunition in use in the Prussian army, and the trial of arms adopted in the military service of foreign nations.

German chemists and military experts are still directing their efforts to the development of increased strength in what is popularly called gunpowder for small-arms ordnance, rather than in exploiting with a modern substitute; keeping constantly in view the fact that none of the military explosives, such as are used in torpedoes and for mining, can be utilized with safety as projecting agents in any portable small arm. High explosives and such mixtures as Designolle's or Brugere's powders are rejected by them as being too violent for use as propelling agents in whatever rifle they may adopt.

The new German repetition small-arm of 1889 is practically identical with the American Remington-Keene magazine gun tested in the autumn of 1881 by a board of officers of the United States army, under the act of Congress providing for the manufacture or purchase of magazine guns, and is fully described in the report of the Chief of Ordnance for 1882. The gun is admitted by the Germans to be merely "an arm of transition." The future small-arm of the German army will be one of gradual growth, and only finally made up of successive improvements rendered necessary to correct defects developed in the hands of the soldier. When the Germans finally acquire the much-needed smokeless powder, now being sought for by all military powers, the standard regulation small-arm will be fixed. The Duttonhofer powder now used by Germany seems to have a reasonable chance of adoption.

After Sedan the French abandoned the Chassepot for the Gras (model of 1874), a single-loading arm. About 1885 Col. Gras visited the United States for the purpose of familiarizing himself with American gun-making machines and processes. During the next thirty months Gens. Gras, Tramond, and Luzeux and Col. Lebel jointly gave their names to special repeaters. On Nov. 1, 1888, the Lebel (model of 1886) rifle, having the American tubular magazine under the barrel, was issued to the French army.

About 1848 Mr. Jennings, of Windsor, Vt., invented a magazine gun whose cartridges were stored in a fixed tube extending lengthwise under the barrel. In 1863 a Connecticut firm, the Winchester Arms Company, sent this magazine gun to a small-arms board in Switzerland. Because of its original features, it was awarded a prize of one thousand francs. In 1869 the Government of Switzerland adopted a native modification of the Jennings-Winchester tubular magazine rifle called the Vetterli. The Ameri-

can storage system for cartridges was afterward substantially adopted for use in the French navy, also by the land forces of Portugal and Chili. To the small-arm having the fixed under-tubular magazine invented by Mr. Jennings, and modified by Winchester, was given the name Kropatschek. The Lebel rifle, with which the infantry of France are now armed, retains the Kropatschek magazine system; the cartridges are placed beneath the barrel in the forearm of the stock.

Italy.—Italy has been so long classified as a military power of the second order that it is surprising to know that her regular army comprises more than 750,000 men, with a war footing of nearly \$2,000,000, maintained at an annual cost of more than \$41,000,000. Her small-arms armament includes the Vetterli and the Vitali-Vetterli, both of which are well-tested single-loaders, or repeaters, at will; the Cei, a magazine gun, hitherto untried; and the Freddi and the Pieri experimental recoil single-loaders with magazine attachment. The Vitali bolt gun has a magazine fixed under the shoe, into which four cartridges, packed in a card-board box, are pushed from above. This is avowedly only a temporary expedient, pending the introduction of an improved weapon. A recent issue of a military journal called "*Revista d'Artiglieria e Genio*," published in Rome, has a description of smokeless gunpowder; an account of the results of the labors of the Italian officers who are building a small-arm factory in Morocco for the Sultan; also data of the infantry rifles in use in the different armies of the world. The "*Revista Marittima*" publishes the new regulations made necessary by the adoption of the Vitali repeating rifle in the Italian army, particular reference being had to the number of cartridges that non-commissioned officers, bandsmen, and privates are in future to carry. Privates of Italian infantry each carry ninety-six rounds of ammunition. The Freddi and Pieri recoil rifles, like the Maxim and Paulson, utilize the force of the recoil. When the charge of gunpowder contained in a gun is fired, the sudden expansion of the powder into many times its former bulk acts with equal force in every direction. As the resistance offered by the ball is far less than that of the gun, it is forced to a great distance; but the gun must, nevertheless, feel the reaction and is driven backward. This is called the recoil, or "kick." In big guns, the gun and shot remaining the same, the recoil is proportionate to the charge, and means are employed to check or control it. But pneumatic and hydraulic buffers and friction checks are not practicable with rifles. Some sportsmen have recoil pads, or steel or rubber springs, attached to the butts of their rifles or against the shoulder. These appliances enable them to fire heavy charges with impunity. By using the gunsling in the firing positions so popular in our army to-day, many times the recoil of the service Springfield can be sustained without inconvenience. The augmentation of power and accuracy has been believed to be attained only by increased charges, which, in turn, mean increased "kick."

Many conflicting opinions are held on the subject of recoil. By the Freddi invention the severity of recoil is not only reduced, but the force of discharge is made to assist the soldier in

reloading, recocking, and refiring the rifle. By the Maxim invention, with continued pressure of the finger upon the trigger after the first discharge, the piece will load and fire automatically to the extent of its magazine, which contains seven cartridges. When it is desired to fire single shots, pressure upon the trigger must be released after each discharge. The Paulson recoil rifle—machine gun, rather—does the same thing, and more too; the rearward motion of the breech-block, under the action of the gases, compresses, as it moves, a strong spiral spring and extracts the old shell, after which the wonderful invention goes on acting on a system of levers that work a revolving drum under the receiver, which latter supplies a new cartridge; the cartridge is then automatically pressed into place in the chamber by the breech-block as it returns under the action of the spring. If the finger-pressure on the trigger is continued, the gun goes off by itself. All that the soldier has to do is to keep the gun at his shoulder. As a clock automatically strikes the hours, so do these recoil rifles deliver their shots; but no winding-up process is required. The distinguishing feature of the Freddi rifle is the attempt to reduce recoil and utilize the force of discharge by allowing the barrel a motion of translation at the time of discharge, a strong spiral spring being attached to resist this motion and bring it back to its proper position. The breech-block goes back with it, but, by means of a stop, is prevented from returning, and thus the empty shell is extracted. The new cartridge is then inserted into the receiver, and, by pressing a button, the breech-lock is closed by a spring forcing the cartridge into the chamber and cocking the firing-pin. This process is almost simultaneous, and is performed so rapidly as hardly to be perceptible to the eye. A quick-loading device, consisting of a leather case attached to the side of the gun, enables the soldier to fire twenty-four shots a minute. It is claimed that the spiral spring used in this rifle diminishes the severity of recoil, and the weight of the gun has therefore been reduced from ten pounds to seven pounds.

The recoil of our Springfield rifle is about 174 pounds. The Freddi has a caliber of .315; 83 grains of powder; bullet weighs 225 grains; length of bullet in caliber, 3.67; initial velocity, 1,640 feet a second. The Italian Pieri rifle is more powerful than the German Hebler. The Pieri has a caliber of .323; 83 grains of powder; bullet weighs 284 grains; length of bullet in caliber, 4.3; twist, one turn in 12.1 inches; initial velocity, 2,057 feet; at an angle of fifteen degrees it has a range of 3,103 yards. The rapid twist, to give proper rotation to the long bullet, is a necessary evil.

The Vitali-Vetterli (model of 1887) has a caliber of .414; charge, 62 grains of powder; bullet weighs 312 grains; length of bullet in caliber, 2.24; twist, one turn in 26.28 inches; initial velocity, 1,430 feet a second.

Our word "pistol" is derived from the word *pistallo*. The pistol was first made at Perugia, where was first made a small hand cannon about seven and a half inches in length. In the Dresden Museum there is a wheel-lock pistol of the sixteenth century, which is the most ancient weapon of this kind in existence.

Portugal.—The desire for, or the dread of conquest has impelled every European nation of importance to improvement and enlargement of its armament. Peace can be compelled by any nation that has the highest military strength. Portugal, too, is waking up. Some time ago she adopted the Guedez-Kropatschek single-loader, with magazine attachment, 40,000 of which have been ordered from an Austrian gunfactory. This rifle is: Caliber, 323; bullet, 264 grains; length of bullet in caliber, 4.09; fired from a barrel having one twist in 11.3 inches. It is a bolt gun, carries five cartridges in a box, and has an initial velocity of 1,673 feet a second.

About 1865 the Portuguese adopted, or used, the Snider rifle extensively. The inventor of this rifle, Jacob Snider, is a Philadelphian. As many as 30,000 shots have been fired from a single rifle of this make without affecting its efficiency. There has been a general rush in Portugal, as in France and Italy, toward bullets of the least obtainable caliber. The action of Portugal has not been governed by any general principle or plan. She has rushed into the field of experiment like a blind man. When a condition is imposed that a bullet, impelled by gunpowder, shall be in excess of four calibers in length, a reduction in the barrel causes an increase in retardation. A decrease in caliber is at the expense of a great sacrifice of power. In order to compensate for the loss of energy incident to the reduction of caliber, a new motive power to supersede gunpowder, and of greater strength, is everywhere sought for. Attempts are being made at Aldershot, England, to utilize other explosives than gunpowder for use in military rifles. In many other localities the efforts of thought, invention, and experiment have been directed toward ways and means by which new explosives can be made serviceable in rifles. Portugal has vegetated in such a state of inglorious apathy that no development in the implements of warfare is looked for in that country.

Russia.—In 1868 Russia bought 30,000 Berdan rifles in the United States, and 30,000 more were bought at Birmingham, England, in 1870. At the close of the last war between Russia and Turkey, she had 1,120,000 of these rifles on hand. In 1867 a Swede named Karle presented to the Russian Government a breech-loader of his own invention. About 200,000 Cossack rifles, caliber .55, 176-grain bullet, one twist in 45 inches, were altered to the Karle system. Not long afterward an Austrian named Krenk offered a rifle adapted to the metallic cartridge. His system was adopted, and more than 1,000,000 guns were converted. The Russian troops, during the war of 1877-'78, were armed with the Krenk. The Berdan rifle is classified with our own Springfield, and has a fixed chamber closed by a movable breech-block, which rotates about an axis at ninety degrees to the axis of the barrel and in front. Trials have been had in Russia with the Berdan single-loader and the Mossin magazine rifle. The American Berdan, with Vasmoudi's quick-loading device, has been retained.

Gens. Dragomiroff and Shebecheff have published articles against the alleged advantages of the adoption of any magazine repeating rifle. The former says that the present arming of European troops with magazine weapons is due

solely to the force of imitation and example set by the inordinate military rivalry between France and Germany. The general recommends the retention of the American Berdan rifle, only with a smaller caliber, pressed powder, and steel-pointed bullets. Gen. Shebeeheff asserts that the Germans are not pleased with their new magazine weapon, the converted Mauser. The great objections are, first, the time taken to replenish the magazine, and, second, the alteration of the trim or balance of the weapon as each shot is withdrawn from the tubular magazine under the barrel and fired. This latter difficulty can be overcome only by incessantly practicing with ball-cartridges until the changing trim of the rifle ceases to affect the soldier. The enormous expenditure of ammunition necessary to accomplish this is more than any government would sanction. The Russian Berdan has a single-loader, caliber of .42 inch; the bullet weighs 370 grains, and is 2.55 calibers in length; twist, 21.65 inches; initial velocity, 1,444 feet. The United States with her Springfield and Russia with her Berdan are faithful to the antiquated system of well-tried, well-made single-loaders and heavy projectiles. The Russians have a saying that, in war, that bullet is preferable which travels nearest to the surface of the earth; in other words, has the flattest trajectory. Russia has introduced the Evans magazine rifle, an American invention, into her navy. The general principle of the Evans is similar to that of the well-known Spenceer repeater. It can be used as a single-loader. The rifle holds thirty-eight small cartridges, so stored in the butt that they are never in contact with one another. The Russians consider a magazine gun a double-edged tool, effective in the hands of well-trained and seasoned soldiers, but a source of weakness to men who can not well be kept under control by what is professionally known as "fire" discipline in contradistinction to "drill" discipline. Gen. Skobelev declared the repeating rifle to be useless until some description of smokeless powder was introduced. The name of "Silvotar" is given to the new Russian explosive.

Spain.—Spain maintains a regular army of about 153,000 men. Her war footing is 400,000, and the annual cost of maintaining her army is \$25,000,000. In sharp contrast with the military decadence of Spain and her inertness in the matter of efforts to keep pace with other nations is the fact that the musket was first introduced in Europe by the Spaniards under Charles V. The original caliber of the musket was such that eight round bullets weighed a pound; the piece was, consequently, so heavy that it was necessary to fire it from a forked rest inserted in the ground. The size of the bore was finally reduced to eighteen bullets to the pound, and from this arm was derived the smooth-bore rifle. The rifle was invented by Gaspard Zoller, of Vienna, and first made its appearance at a target practice at Leipsie in 1498. The original object of rifling or grooving the barrel was to find space for the reception of the foul residue produced by discharging the rifle, and thus to diminish the friction of the bullet as it was forced down by the ramrod. Twenty years later a spiral turn was given to the groove, the degree of twist varying as the fancy of the gunmaker might suggest.

About 1600 the rifle began to be used as a military weapon for firing spherical bullets. In 1729 it was found that good results could be attained by using oblong projectiles of elliptical form; hence the Lancaster elliptical rifle. But Spain did not manifest enterprise enough to follow these or succeeding military improvements upon her ancient muskets, and Europe no longer trembles with fear at the armament of the descendants of the warlike hidalgos. Almost every nation has elaborated some system, or stolen one, of small-arms armament except Spain. Spanish infantry are armed with the Remington rifle of American manufacture.

Sweden.—Sweden has discarded our Remington and adopted the Jarman magazine rifle, which has a tube under the barrel holding eight cartridges. It can be used either as a single-loader or as a repeater, and is open to all the objections urged against, and also to all of the credit claimed for its American prototype, the Winchester. The caliber of the Jarman is .397 inch; powder charge, 77 grains; bullet, 337 grains; length of bullet in calibers, 2.75; twist, 21.8; initial velocity, 1,536 feet. The Jarman, Mauser (Germany), and Lebel (France), all have the eight-cartridge tubular magazine; the Vetterli (Switzerland) has the tubular eleven-cartridge magazine; the Kropatschek (French navy) the tubular with seven. Thus four European nations have adopted our Winchester system of storing cartridges in a repeating rifle. A foreign publication contains the following: "The United States Government has offered every facility, and even inducement, to the manufacturers of breech-loading firearms for the most effective and simple weapon which in the hands of the most clumsy and least intelligent soldier can be manipulated without danger to the user and be capable of the deadliest effect upon the enemy. The result has been that a large number of small-arms of every variety has been produced, many of them presenting such claims to merit that these American inventions have been adopted, in whole or in part, by the military powers of Europe." This compliment from the country governed by the descendants of Bernadotte will be appreciated by our manufacturers, if not by our Government.

Switzerland.—In 1869 Switzerland adopted a complicated magazine gun of the Mauser-Chassepot class, called the Vetterli. It was of Swiss invention, and the barrel had four grooves; twist, 26 inches. One of the adjuncts of the arm was a set trigger. It could be used either as a single-loader or as a repeater. It used a bottle-necked rim-fire cartridge of small capacity. The Vetterli weighed 10.14 pounds, and carried eleven cartridges, each weighing 478 grains. It required thirty seconds to load the magazine. Thus, nearly twenty years ago, this little republic possessed a repeating arm, and stood ready to preserve its neutrality, not relying upon treaties only. The choice of a lighter piece and a smaller bore has not been a matter of indifference to the Federal Government. The authorities at Berne have procured lately 3,000 Feisz rifles, which, like the French pattern, are of 8 millimetres (about .31 inch) bore. Swiss experiments with the Rubin rifle are noted with interest, and are compared with the results attained

by our own Ordnance Department with one of the Rubin rifles constructed according to the Hebler system, using also the Hebler ammunition lately received from Europe. These tests are conducted at the National Armory at Springfield, Mass. Prof. Hebler's rifle uses so long a bullet that a very rapid twist is necessary, one turn in every four inches. The bullet formerly used in the Swiss service was solid, and forcing was effected by a cloth tied around the grooves. The diameter of the Swiss bullet of fifteen years ago was much less than that then in use by any other service, and it was fired by a larger proportional charge of powder. For reasons given in the discussion of the Lebel bullet, it lost its velocity very rapidly at ranges in excess of 1,000 yards. The Federal rifle of Switzerland had a caliber of .413; weight of bullet, 257 grains; length of bullet in calibers, 2.44; twist, one turn in 35 inches. Since 1869 Switzerland's army has been supplied with the Vetterli repeating rifle. This weapon has a tubular magazine, somewhat on the Winchester pattern, with a complicated action. It carries cartridges of caliber .414; bullet, 312 grains; length in calibers, 2.24; twist, 26.28. It is a bolt gun, and can be used either as a single-loader or as a repeater. Its initial velocity is 1,427 feet a second. In all tubular magazine rifles the cartridges are forced toward the breech mechanism by some kind of spring, usually spiral, which must be of sufficient strength to support the weight of the column of cartridges and force them into the receiver of the arm as fast as required; hence, of necessity, it must have very considerable stiffness or strength. The weight of a column of cartridges when a magazine gun is in a vertical position brings each bullet directly in contact with the primer of the cartridge in advance of it. Fulminate of mercury is used in preparing all primers. It is of different degrees of sensitiveness; different batches vary; despite every caution and care, cartridges explode, sometimes under slight pressure. It is readily seen that any tubular magazine rifle, even of recent invention, has a liability of explosion at "order arms" or from shock not shared by other repeaters. These facts suggest some of the reasons why, in the United States, the Swiss magazine rifles are not regarded as combining the maximum of security from premature explosion to the extent that such repeaters as the Lee or Chaffee-Reece do. The repeaters last named obviate all the objections found in the tubular magazine systems by having their cartridges under the breech and placed nearly horizontally, or as the fingers of the hand lie when it is held edgewise.

Turkey.—In 1877-'78 the practical tests that the Peabody-Martini single-loader underwent in Turkey showed that weapon to be one of the most powerful military rifles in the world. The reorganized Turkish army is armed with Krupp breech-loading guns and the German Mauser magazine rifles. It is understood, even by the Moslems, that as long as war is a calamity that nations are unable to prevent, it is the part of wisdom and of humanity to make the weapons employed as perfect as possible of their several kinds. The Turkish Government contracted last year with German armories for 550,000 Mauser repeating rifles and ammunition. It is believed

that this contract would have come to this country had not Minister Cox returned to the United States before his place was filled by a successor. Turkey pays more for the Mauser than she would have had to pay for the original from which the Mauser was taken—that is, the Lee—and she will receive an inferior arm, while American manufacture loses the incentive of \$15,000-000 worth of business. The Mauser was originally made in the United States, its inventor, after whom it is named, being at work here in 1873, under the patronage of Samuel Remington. Mr. Remington received \$500 for his interest in the invention. The Mauser rifle factory at Oberndorf is engaged in turning out these rifles for the Turkish Government. Eight officers of the Turkish army are residing in a Moorish villa at Oberndorf, for the purpose of taking over the weapons when ready. All of these rifles are to be of caliber .31, 8 millimetres (not caliber .43, 11 millimetres), an important circumstance in regard to the manufacture by the same firm of rifles for the German army. Should the military forces of Germany and Turkey ever be allied, the two nations would thus have a common rifle and ammunition. Should Turkey and Germany confront each other, the advantages of a capture of small-arms and cartridges are equally obvious. Before the last war between Turkey and Russia, the Imperial Ottoman Government bought 600,000 Peabody-Martini rifles from a company in Providence, R. I.

The chronic impecuniosity that characterizes the Turkish Government is illustrated in the notification from Krupp that it must pay up or it can have no more ordnance for its army from that quarter. Herr Krupp's grounds are at Essen and Meppen. The extraordinary size of the breech-loading cannon made by Krupp is suggested by the fact that there is not in America an establishment capable of producing a single part of one of his guns, because unable to hammer or work such enormous masses of metal.

ROMAN CATHOLIC CHURCH. The encyclical letters issued during 1889 are important items in the history of the year. In these letters the Holy Father deplores the decay of the religious spirit in our time and the growth of modern false liberalism which threatens Church and state. He encourages the founding of schools and colleges and the dissemination of the principles of sound morality. He also discusses his own position regarding the Italian Government; and, although he has been shamefully abused by the revolutionary party headed by Crispi, he remains fixed in his resolution not to quit the Eternal City. His letters to Canada and the European states treat of the labor question and recommend an immediate and amicable adjustment.

The missionary spirit and civilizing influences of the Church find expression in the efforts made by Cardinal Lavigerie to crush the slave trade in Africa and to make the evangelization of that continent possible. His success, thus far, is promising, when we consider the obstacles that meet his work on all sides. The cardinal affirms that force alone can abolish this disgraceful traffic. Father Damien has shown the world to what heights of charity the soul may rise when animated by the spirit of true Christianity. (See

DAMIEN.) Two priests, two brothers, and three nuns continue the work begun by him.

The Church in America celebrated important anniversaries during the year. Foremost among them was the centenary of the establishment of the See of Baltimore—the founding of the American Catholic hierarchy. Formal exercises were held in the metropolitan cathedral, Cardinal Gibbons pontificating. The orations delivered by Archbishops Ryan and Ireland were full of practical wisdom. Nearly all the prelates of the United States were present, and Rome, England, Canada, Mexico, and other countries were liberally represented. This great event was immediately followed by another not less important—the Congress of American Catholic Laymen. Its object was the discussion of questions bearing directly upon the present status of Catholicism, upon the duties of laics, and upon certain political grievances. Cardinal Gibbons, Daniel Dougherty, John Gilmary Shea, and other noted Americans addressed the congress.

On Nov. 12 the work of the Congress was concluded, and on the 13th began the ceremonies for the dedication and formal opening of the new university at Washington. The two American cardinals were present, and nearly all the archbishops, bishops, abbots, and other Church dignitaries met to honor the occasion. Right Rev. Bishops Gilmour and O'Farrell, Dr. Schroeder, and Father Fidelis, C. P., were the orators.

On Feb. 19 Georgetown College celebrated the centennial anniversary of its founding. A host of graduates and distinguished friends of the institution thronged the historic spot, and the festivities were continued for several days. All the educational institutions of America joined with Georgetown in the celebration, or sent messages of felicitation and encouragement. Cardinal Gibbons paid a glowing tribute to the memory of its illustrious founder, Archbishop Carroll. President Harrison, members of his Cabinet, and other distinguished citizens, spoke of the march of Christianity, of the position of the Church in America, and of the importance of thorough education. At the time of the foundation of the university it was scarcely a hope. The skillful management of the authorities, the zeal and earnestness of the Jesuits, and the substantial support of appreciative Americans have made Georgetown a great power in American education.

The action of the Italian freethinkers in erecting a statue to Giordano Bruno was discussed throughout Christendom, and directed the attention of the civilized world to the position of the Pope. Bruno is regarded by Catholics as a renegade cleric, who, for blasphemy, was burned at the stake by the civil Government. The enemies of the Pope consider Bruno as a martyr to philosophy and freedom of thought, who aimed at the same time to destroy the papal influence in Italy. Telegrams expressive of sympathy with the Holy Father and of indignation at the insults offered him, poured in from all sides and consoled him, in part, for the defection of the Italians.

In Ireland the Church is most concerned with the university question. The bishops seem determined to control the higher education of the Irish laymen. The only dissentient from this

view seems to be the Rev. Dr. Healy, coadjutor Bishop of Clonfert. Cardinal Manning's successful arbitration in the labor strikes in England redounds to the glory of the Catholic hierarchy of that country. This truly pastoral action was performed with such satisfaction to employers and workmen that no complaint was ventured on either side.

The necrology for 1889 bears the names of many eminent churchmen. Cardinal Pitra died on Feb. 9. He had been librarian of the Vatican for many years, and his learning and wisdom were proverbial throughout Europe. A few weeks afterward Cardinal Sacconi died. Then Cardinal Messala, the Apostle of Africa, died at Naples Aug. 6. Finally the sacred college lost a fourth and very distinguished member by the death of Cardinal Schiaffino. Right Rev. J. P. Macheboeuf expired in his episcopal city at Denver, and was succeeded by Bishop Matz, his coadjutor (July 15). Mgr. Corcoran, a learned and devoted son of the Church, passed away on July 16. He had been editor of the "American Catholic Quarterly Review" since its foundation, and impressed his mind deeply on American literature. He was the principal secretary of the third Plenary Council, and prepared a digest of the decrees of that body. On Sept. 1 occurred the death of Bishop Kelly, of Derry, and on Dec. 6 that of Bishop Tuigg, in the episcopal city of Pittsburg. Rev. James Curley, S. J., the oldest priest in America, and one of the oldest in the world, died near the end of the year. Father Curley was a celebrated astronomer, and was appointed by the Government to ascertain the longitude of Washington. Another Jesuit, Father Thiry, died about the same time; his charity and zeal earned for him the surname of the "American Curé of Ars." Very Rev. Fra di Bruno, Rector-General of the Society of Missions passed away in Rome, April 18. He is perhaps best known in America by his little book entitled "Catholic Belief." On Feb. 21 the Augustinians were called upon to mourn the death of their Superior-General, Most Rev. Dr. Nino, who was formerly a missionary in the United States. The Society of Jesus lost two eminent members, Fathers Weniger and Ienni. Father Ienni was the compiler of a well-known Greek Grammar. The ranks of the laity, too, were thinned by the death of many distinguished Catholics. American journalism sustained a severe loss in the person of Comendatore P. V. Hickey (Feb. 21), founder and editor of the "Catholic Review." Mr. Hickey's reputation was international, and he was particularly honored by the Pope on several occasions. Queen Mary, of Bavaria, died May 17, and the widow of President John Tyler on July 10. Both were converts.

Seven archbishops were admitted to the Sacred College, May 11. They were: Mgr. Rieh-ard (Paris), Foulon (Lyons), Guilbert (Bordeaux), De Schoenborn (Prague), Goosens (Malines), Appolloni, and De Ruggiere. Other changes in the episcopate were: Bishop Van de Vyver to succeed Bishop Keane in the see of Richmond; Bishop Heslin for Natchez; Bishop Walsh, of London, Ont., transferred to the archdiocese of Toronto; Bishops McGolrick, Zardetti, Cotter, Shanely and Marty for the new dioceses of Duluth, St. Cloud, Winona, Jamestown, and Sioux

Falls. On Feb. 14 Archbishop Janssens received the pallium, and on the same day Father Foley was made Bishop of Detroit, Father Hennessey of Wichita, and Father Dowling of Hamilton.

The public-school system furnished matter for extended discussion, and at one time it was thought a crisis had been reached. Catholics consider themselves obliged to support schools for the education of other people's children as well as their own, and the difficulty is as pressing as ever. The race problem, too, has forced itself upon the public during the past year. A seminary has been opened in Baltimore for the training of young men who are to spend themselves wholly for the improvement of our colored brethren. The first meeting of the colored Catholics of the United States was held in Washington, Jan. 1-4. The Catholics of the United States are organizing an international congress, to be held in Chicago in 1892.

ROUMANIA, a constitutional monarchy in eastern Europe. The sovereign is Carol I, born April 20, 1839, son of the late Prince Karl of Hohenzollern-Sigmaringen, who was elected Prince in 1866, and was proclaimed King on March 26, 1881. The legislative power is vested jointly in the Senate, composed of 120 members, and the Chamber of Deputies, numbering 183. The members of both houses are chosen by electoral colleges in each district.

Area and Population.—The area of Roumania is 48,307 square miles. The population is estimated at 5,376,000. The population of Bucharest, the capital, in 1876, was 221,805. Of the total population, about 4,529,000 are Greek Catholics, 400,000 Israelites, 114,200 Roman Catholics, 13,800 Protestants, 8,000 Armenians, 6,000 Lipovans, and 2,000 Mohammedans.

Finances.—For the year ending March 30, 1888, the receipts of the treasury amounted to 142,927,318 lei or francs, and the disbursements to 140,201,995 lei, leaving a surplus of 2,725,323.

The capital of the public debt at the end of 1889 stands at 851,412,554 lei, and the interest payable during 1889-'90 is 54,505,497 lei.

The Army.—The peace strength of the permanent army is 2,666 officers and 35,921 men, with 8,124 horses and 573 field-guns. The territorial army on the war footing numbers 81,843 men of all ranks, with 4,401 horses. There is also a militia. The naval force consists of a torpedo cruiser, 2 avisos, 6 gunboats, and 5 torpedo-boats. Gen. Mano, the new Minister of War, although on technical grounds an opponent of the system of fortifications that had been approved by a military commission, and already begun, pledged himself to the King, on accepting office, that he would carry out the scheme.

Commerce.—The total value of the imports in 1887 was 314,680,752 lei, an increase of 18,183,390 lei over the previous year. The exports were valued at 265,726,613 lei, an increase of 10,179,350 lei. Of the imports, 90,053,000 lei came from Germany, 86,787,000 lei from Great Britain, 53,455,000 lei from Austria-Hungary, 25,017,000 lei from France, 16,616,000 lei from Belgium, 15,632,000 lei from Switzerland, 10,290,000 lei from Turkey and Bulgaria, 8,776,000 lei from Russia, and 8,055,000 lei from Italy, Greece, and other countries. Of the exports, 154,243,000 lei went to Great Britain, 21,229,000

lei to Austria-Hungary, 19,751,000 lei to France, 17,225,000 lei to Italy, 15,702,000 lei to Belgium, 10,868,000 lei to Turkey and Bulgaria, 8,764,000 lei to Germany, 7,896,000 lei to Russia, and 10,049,000 lei to other countries.

Railroads, Posts, and Telegraphs.—The state lines of railroad in operation in 1889 had a total length of 2,230 kilometres, besides 222 kilometres of private lines worked by the state. There were 89 kilometres under construction, and 364 kilometres more surveyed.

The number of ordinary private letters forwarded in the mails during 1888 was 11,454,270; of official letters, 2,932,337; of registered letters, 1,318,756; of circulars and printed inclosures, 6,135,942; of postal-cards, 3,436,453.

The length of the telegraph lines in 1888 was 5,234 kilometres; the length of wires, 12,935 kilometres. The number of private internal telegrams was 870,343; of foreign private telegrams, 295,734. The revenue from telegraphs and the post-office was 5,049,219 lei, and the expenditure 3,780,480 lei.

Politics and Legislation.—The defeat of the Bratiano Cabinet in April, 1888, resulted in the formation of a Junimist or Young Conservative Cabinet, under T. Rosetti, with P. Carp as Minister of Foreign Affairs. The Old Conservative or Boyar party, who had brought about the downfall of the Liberal statesman that had been at the head of the Government for twelve years, began in January, 1889, to oppose the Government in regard to making Galatz and Braila free ports, and on other questions, in the hope of replacing the ministers with a Conservative Cabinet, with Lascar Catargi, President of the Chamber, as its chief. Catargi resigned when the motion for restoring the free ports was lost, but was re-elected. Gen. Mano entered the Cabinet as Minister of War in the beginning of the year. As the result of a compromise, the Conservatives, Vernesco and A. Lahovary, were also taken into the Cabinet as Ministers of Justice and Domains. The Conservatives represented chiefly the anti-Austrian sentiment, which springs from the old antagonism between the Roumanians and the Hungarians, and was intensified by the tariff war. On Feb. 21 the Chamber voted in favor of the impeachment of the late Cabinet for violating the freedom of the press and of assembly, and the privilege of members of Parliament. The new resolution, from which some of the charges were omitted, obtained a majority of 101 votes against 47. A ministerial bill to sell the national domains in parcels to peasants was adopted in principle on March 2 by 98 against 17 votes. All receipts from the sales of public lands must be applied to reducing the debt. The total extent of the domain lands is about 1,500,000 hectares. The number of peasant families lacking the necessary land was estimated as high as 200,000. Vernesco, after first refusing to withdraw from the Cabinet at the dictation of Catargi, produced a Cabinet crisis by appointing friends to high judicial offices without the approval or knowledge of his colleagues. On April 3 the ministers sent in their resignations in consequence of the refusal of Vernesco to retire. The late ministers, having declined to resume their portfolios without the privilege of dissolving the Chamber, Lascar Catargi was called

on, and was intrusted with the formation of a ministry on his undertaking to satisfy the existing Parliament. His first attempt was fruitless, and it was not till other combinations had failed that the King applied to him a second time, and he formed a Cabinet on April 10. The new Cabinet was compelled to adopt, in its main traits, the foreign policy of the preceding Governments.

The Cabinet dissensions became so serious in the early part of August that Ministers Lahovary and Mano asked leave to resign. Catargi had not ventured to oppose the agrarian reform bill, which was passed by the Senate after he came into office, yet he had neglected to carry out the provisions of the act, and had rendered himself unpopular in the rural constituencies furthermore by proposing to take away from the communes the right to elect their mayors. Before the Chambers reassembled, Catargi asked the King to grant a dissolution. The King agreed to dissolve Parliament only on condition that the members of the Cabinet should heal their differences, and go before the country with a homogeneous programme. After a stormy Cabinet conference, the Premier went to King Carol, and offered his resignation, which was accepted. Gen. Mano was asked to form a new ministry, which he did, chiefly from Junimist elements.

RUDOLF, FRANZ KARL JOSEF, Archduke, Prince Imperial of Austria and Prince Royal of Hungary and Bohemia, born Aug. 21, 1858; died in Meyerling, Jan. 30, 1889. He was the only son of the Emperor-King Franz Josef and of the Empress Elizabeth, daughter of Duke Maximilian of Bavaria. The Crown Prince received a careful education, and developed tastes for literature, science, art, and inventions, rather than for military affairs. He was declared of age on June 24, 1877, and a year later entered upon active military service. He was made a major-general and rear-admiral in September, 1880, was appointed to the command of a brigade of infantry stationed at Prague on April 6, 1881, was advanced in 1883 to the rank of lieutenant field-marshal and vice-admiral, taking command of the division of troops in Vienna, and at the time of his death he filled the post of inspector-general of infantry. He was the proprietor of a regiment of Uhlans and of a regiment of artillery, and was honorary colonel of Prussian, Bavarian, and Russian regiments. On May 10, 1881, he married the Princess Stéphanie, Duchess of Saxony, born May 21, 1864, second daughter of Leopold II, King of the Belgians, and of Queen Marie Henriette, Archduchess of Austria. They had one child, the Archduchess Elizabeth, born Sept. 2, 1883. The Crown Prince was disappointed that the only fruit of the marriage was a daughter, and that therefore the throne and the possessions of the Hapsburgs must pass to the descendants of others.

Crown Prince Rudolf was a man of active habits, versatile talents, and cordial manners, gaining friends wherever he was known, and enjoying universal popularity. He observed a correct demeanor in political matters, seemingly taking little interest in controversial subjects, but showing a patriotic love for the lands and peoples of the Austro-Hungarian dominions and a great attachment for his father. He was a graceful public speaker, and his extempore ad-

resses were always remembered for their pointed sentences and bright aphorisms. He was a master of the Magyar and Bohemian languages, and could write and speak any of the languages of the empire. At one time he surprised the Serbian minister by holding with him a long conversation in his own tongue. He was fond of hunting and of travel, and was devoted to the study of natural history, and an accomplished ornithologist. He traveled much in foreign countries. His first long journey was in Spain, where he was accompanied by the naturalist Brehm. A hunting tour on the lower Danube furnished him with the subject for his first published work, a little book entitled "*Fünfzehn Tage auf der Donau*," evincing love of nature and uncommon powers of observation and description. In 1884 he visited Constantinople, and a year later he made a trip through Egypt and Palestine, which he described in "*Eine Orientreise*." This work was issued first in a large volume with illustrations by the painter Pausinger, and afterward in a popular edition, also illustrated. The natural and antiquarian specimens that he brought home were given to the Imperial Museums. "*Studien und Beobachtungen*," a book that he published subsequently, treats of subjects connected with woodcraft and natural history. Soon after his return from the East he planned an important literary undertaking, an illustrated descriptive work on the geography of the Austro-Hungarian Empire. Enlisting the services of the most eminent writers and artists of the country, he took upon himself the duties of editor-in-chief, and in fact organized the work and directed all the technical details. Some of the descriptive articles are from his pen. The assistant editor of the German edition, Councilor von Weilen, was much with the Prince in his last days. The sub-editorial work of the Hungarian edition was committed to Maurus Jokai. The work, which is entitled "*Die österreichisch-ungarische Monarchie in Wort und Bild*," was intended to be completed in twelve quarto volumes. Crown Prince Rudolf had planned another large, comprehensive work, to be called "*Die Jagd*," treating of all subjects connected with game and hunting. He was interested in practical economical subjects, and was the author of papers dealing with the destruction of forests, vineyard culture, agricultural reforms, noxious insects, forest legislation, and other such subjects.

It was reported at first that the cause of the Crown Prince's death was paralysis of the heart, and the court officials were desirous of concealing from the world the fact that he had committed suicide. This design was defeated by the refusal of the physicians to sign a statement ascribing his death to heart-disease. Their report, based on a post-mortem examination, revealed the fact that he had killed himself with a pistol fired against his right temple. The confirmation of his skull indicated pathological conditions, and suggested to the doctors the probability that he had committed the deed in a state of mental alienation.

RUSSIA, an empire in northern Europe and Asia. The government is an absolute monarchy. The autocratic power is hereditary in the house of Romanoff-Holstein-Gottorp. Alexander III

ordained, in a family law, promulgated on June 18, 1889, that no member of the imperial house is capable of succeeding to the throne both of whose parents are not adherents of the national Church; and that no prince who might become heir to the throne can marry a princess of another faith unless she embraces the Orthodox religion. The government is carried on by the aid of four boards: (1) the Council of State, which examines projects of law submitted by the ministers; (2) the Ruling Senate, which approves legislation, acts as the Supreme Court of Justice, and supervises the general administration; (3) the Holy Synod, which superintends ecclesiastical affairs; and (4) the Committee of Ministers.

The reigning Emperor is Alexander III, born Feb. 26, 1845, who succeeded his father, Alexander II, on March 13, 1881. The heir-apparent is the Grand Duke Nicholas, born May 18, 1868, the eldest son of the Czar and of the Czarina Maria Dagmar, a daughter of the present King of Denmark. The Committee of Ministers is composed of the following members: Minister of the Imperial Household, Lieutenant-General Count Vorontzoff-Dashkoff; Minister of War, General P. Vannofsky; Minister of Foreign Affairs, Nicholas de Giers; Minister of Marine, Vice-Admiral Tchihatchoff; Minister of the Interior, M. Durnovo; Minister of Public Instruction, Count Delyanoff; Minister of Finance, M. Vyshnegradsky; Minister of Domains, M. Ostrofsky; Minister of Communications, M. Hübenet; Comptroller-General, J. Filipoff; Minister of Justice, N. Manassein. The Council of State is presided over by the Grand Duke Michael, uncle of the Czar. The Czar's brother, the Grand Duke Alexis, is commander-in-chief of the navy. The President of the Holy Synod is Isidore, Metropolitan of Novgorod; and the Procurator-General is M. Pobiedonostcheff. M. Durnovo, who was at first appointed Minister of the Interior *ad interim*, after the death of Count Tolstoi, was definitively confirmed in the office by an imperial rescript, published on May 18. The Czar appointed the Czarevich, on his twenty-first birthday, a member of both the Council of State and the Committee of Ministers. This is the first time that any Russian heir to the throne has been made a member of these bodies, and thus brought into direct connection with the Government.

Finances.—The receipts from ordinary sources in 1888 were 896,361,000 rubles: the total receipts from all sources, 961,438,000 rubles. The ordinary expenditures amounted to 840,419,000 rubles, and the extraordinary expenditures to 86,848,000 rubles, making a total sum of 927,267,000 rubles, which was 34,171,000 rubles less than the receipts.

The Government on Jan. 1, 1889, owed 3,044,687,872 rubles, repayable in paper currency, including 568,559,743 rubles of paper notes, unprotected by metallic reserves. There were also a debt of 387,954,583 rubles payable in specie, one of £121,442,680 sterling, one contracted in Holland of 63,334,000 guilders, and another of 550,128,000 francs.

The success of the conversion, in 1888, of the 5-per-cent. loan of 1877 into 4 per cents., and the general improvement of Russian credit, induced the Minister of Finance to conclude another

loan of 175,000,000 gold rubles for the conversion of other 5 per cent. obligations. The German semi-official newspapers cried down Russian credit, but the books were opened at Paris, as well as in Berlin, and in the French capital the loan found plenty of takers.

The Army.—Military service in the permanent army begins at the age of twenty-one, and lasts in Russia in Europe five years in the active army and thirteen years in the reserve; and in Asiatic Russia, seven years in the active army and seven years in the reserve. In the territorial army the period of service is five years. Young men who are completely capable of bearing arms, and are not the sole support of their parents, if not drawn for the regular army, are inscribed in the first ban, which in time of peace can be called out to drill for two periods of six weeks each; and in time of war is destined to complete the permanent army. In 1889 the number of men called into the service was 850,000, of whom 250,000 were drawn for the permanent army, not counting 2,400 in the trans-Caspian territory. This was the same as the recruit of 1888, 15,000 more than in 1886 and 1887, and 32,000 more than in 1878 and 1879. The effective strength of the field army in 1889 was 848 battalions of infantry, comprising 386,312 men; 328 squadrons of cavalry, comprising 57,416 men; 344 batteries of field artillery, with 1,542 guns, numbering 61,880 men; 33½ battalions of engineers, numbering 18,977 men; and 35,130 men belonging to the train, siege artillery, etc., making the total force 562,500 men. The reserve numbered 73,634 men, the local troops 112,850 men, and the Cossack cavalry 51,953 men, bringing up the total number to 799,937. The great augmentation of the cavalry force on the western frontiers has been followed by the doubling of the rifle battalions, which are likewise designed to hinder the mobilization of an enemy, assisted by the flying batteries and ammunition-wagons that will be attached to each brigade. A second division of Cossacks has been transferred to European Russia. For three successive years the reserves have been called out for the autumn manœuvres.

The Navy.—The naval force in the Baltic in 1889 comprised 33 ironclads, including 2 under construction, 32 armed steamers, of which 2 were building, and 45 other steamers, 97 torpedo-boats, of which 3 were unfinished. In the Black Sea there were six ironclads, one of them being incomplete, 18 armed steamers, 23 other steamers, 28 steam launches, and 21 torpedo-boats. There were 10 armed steamers in the Caspian Sea and 7 in Siberia, besides 8 torpedo-boats. 8 unarmed steamers, and other vessels. Since 1886 the greatest activity has been shown in re-establishing a Russian fleet in the Black Sea. In 1888 three armored vessels and several gunboats were added, and in 1889 the Minister of Marine ordered three more ironclads to be built within four years, each having a displacement of 11,000 tons and engines of 12,000 horse-power, besides six torpedo-boats designed to burn petroleum. A steel torpedo-boat, launched at Nicholaieff in May, 1889, is planned for a speed of 20 knots. Four large monitors were also ordered to be added to the Black Sea fleet. A large ironclad with two turrets was laid down at St. Petersburg in April, 1889. Two monster ironclads,

surpassing anything in the Russian navy, have been ordered to be built. The "Emperor Nicholas I," launched at St. Petersburg in 1889, has a displacement of 8,840 tons, armor 14 inches thick, and an armament of two 12-inch guns, in thickly plated turrets, and 20 quick-firing revolving cannons.

Commerce.—The value of the imports in 1888 was 390,700,000 rubles, of which 332,300,000 rubles came over the European frontiers, 11,400,000 rubles from Finland, and 47,000,000 rubles from Asia. The exports had a total value of 793,900,000 rubles, of which 728,100,000 rubles went to European countries, 19,300,000 rubles to Finland, and 46,500,000 rubles to Asia. The imports at the Baltic ports amounted to 154,400,000 rubles, and the exports to 201,100,000 rubles; the imports by way of the European land frontiers were 125,300,000 rubles in value, and the exports 177,800,000 rubles; 51,700,000 rubles of import were received at the ports of the Black Sea, and 342,200,000 rubles, or 47 per cent. of all the exports of European Russia were shipped from those ports; the import trade of the White Sea ports was 900,000 rubles, and the export trade 7,000,000 rubles. The commercial intercourse with the principal foreign countries doing business with Russia is shown in the following statement of the value of the trade with each one in 1888, given in rubles:

COUNTRIES.	Imports.	Exports.
Great Britain	101,223,000	236,373,000
Germany	122,624,000	182,790,000
France	13,944,000	59,036,000
Netherlands	4,551,000	53,428,000
Austria-Hungary	14,878,000	26,953,000
Belgium	6,812,000	32,968,000
Italy	6,632,000	27,442,000
Turkey	5,312,000	24,178,000
China	28,175,000	2,504,000
Sweden and Norway	4,717,000	16,706,000
United States	20,783,000	155,000
Denmark	2,144,000	12,268,000
Persia	11,295,000	3,006,000
Greece	733,000	9,231,000
Roumania	1,750,000	5,434,000
All other countries	45,172,000	45,336,000
Total	390,745,000	793,864,000

The imports of the precious metals in 1888 were 29,519,000 rubles on the European and 2,115,000 rubles on the Asiatic frontier; the exports were 34,452,000 rubles on the European and 4,601,000 rubles on the Asiatic frontier.

Changes in the tariff increase the duties on wool, raw and in every stage of manufacture, and on powder and dynamite, starch, rice, wax, marble blocks and slabs, woolen rags, and, more recently, on paper stock, hardware, and bar-iron. Laws have been passed, or are in contemplation, excluding foreign insurance companies, restricting the coasting traffic in foreign vessels, and altering the railroad tariffs in such wise that the importation of foreign goods is made as difficult as possible. On the Asiatic frontier tariffs have been lowered. The Czar, in April, 1889, gave his sanction to a resolution of the Council of State that goods entering Russia from Persia or British India shall be assessed at $2\frac{1}{2}$ per cent. *ad valorem*.

Navigation.—The total number of vessels entered at the ports of the empire in 1887 was 13,659, of which 8,860 were steamers. The total

number cleared was 13,434, of which 11,794 carried cargoes and 1,171 sailed in ballast. The Russian mercantile navy in 1886 comprised 2,157 sailing vessels, of 469,098 tons, and 218 steam-vessels, of 108,295 tons.

Railroads.—The railroad network on Jan. 1, 1889, measured 30,731 kilometres, exclusive of the lines of Finland and the trans-Caspian line of 1,064 kilometres. The contemplated Siberian Railroad will run from Samara to Ufa, 485 kilometres, thence to Slatoust, 438 kilometres, thence to Omsk, 1,200 kilometres, and to Tomsk, 900 kilometres more, and from that point to Irkutsk, 1,700 kilometres, and thence about 1,000 kilometres farther to Nerehinsk. From the last place there is steamboat communication of about 3,000 kilometres on the Amur and Shilka, and 400 kilometres of railroad in the Ussuri valley leading to Vladivostok. The distance between Moscow and Vladivostok is more than 10,000 kilometres. The entire cost is estimated at 445,000,000 rubles, or more than twice that of the Canada Pacific Railroad.

Posts and Telegraphs.—The number of ordinary letters carried in the mails in 1887 was 152,616,013; of post-cards, 17,596,779; of registered letters, 14,221,720; of money letters, 11,292,988; of journals, 106,217,068; of sealed packets, 23,819,895.

The telegraph lines belonging to the state had in 1887 a total length of 110,212 kilometres, with 211,026 kilometres of wire. There were besides the Anglo-Indian line of 3,635 kilometres and 1,289 kilometres of other lines. The number of internal dispatches in 1887 was 8,534,323; of international dispatches sent, 622,726; received, 658,000. The receipts were 9,550,912 rubles.

An imperial ukase was issued in August, 1889, ordering the introduction of post-office and telegraph savings-banks wherever it is considered practicable.

Reorganization of Local Administration and Judicature.—Count Tolstoi's reform project, which was ostensibly designed for the benefit of the peasantry, although it had been rejected by a considerable majority when brought before the Council of State in January, was ratified by the Czar on July 24, 1889. The change will restore to the central Government a large part of the authority that was committed to the Zemstvos, and will deprive the people of the right of electing the minor judiciary. A district chief or administrator, who is responsible to the Minister of the Interior, will be the repository of the administrative and also of the chief local judicial powers. Under him will be township judges, who are also appointed, while certain judicial powers will remain in the hands of elective justices of the peace, one of these functionaries being retained in each district. The reform was to be introduced in the provinces of Moscow, Vladimir, Kazan, Kaluga, Kostroma, Riazan, Novgorod, and Chernigoff, on Jan. 1, 1890, and in time to be extended to thirty-four other provinces. The decisions of the district justices of the peace can be reviewed by the ordinary court of sessions, while from the judgments of the district administrator an appeal can be taken to a district court composed of the marshal of nobility, a justice of the peace elected by the Zemstvos, and a judge from the higher court.

The final appellate jurisdiction will not be vested, as heretofore, in the Ruling Senate, but in the Committee of Ministers or a Department of the Council of State. The district chiefs will be nominated from the nobility by the provincial governor. Another part of Tolstoi's project makes the Zemstvos dependent bodies by ordaining that the president, who has hitherto been freely elected, shall be appointed by the Government and wear a uniform, and that he shall prescribe the order of business after receiving his instructions from the governor of the province.

An imperial ukase, dated July 19, 1889, sanctioning a decision of the Council of State, greatly diminishes and restricts the functions and jurisdiction of Russian juries. An agitation against trial by jury has been carried on for a long time by reactionaries, on the ground that in cases of political crime, or in which administrative oppression or provocation could be assigned as a cause of an offense, the offender is invariably acquitted. In future, certain categories of crimes and misdemeanors will be adjudicated without a jury, but by a specially constituted court, composed not only of professional judges but of representatives of the various classes of the community, appointed by the Minister of Justice. The cases that are excluded from the competency of juries include all offenses and derelictions of Government employes, rebellion, resistance to the authorities, insults offered to officials, sentinels, or constables, tampering with official seals, rescuing criminals, insubordination of laborers employed in Government mines, factories, or lands, contraband traffic in Government salt, smuggling and breach of the excise laws, abandonment of a ship or railroad-engine, resistance to custom-house authorities, bank frauds and forgeries, and polygamy.

Russification of the Baltic Provinces.—During the reign of Alexander III the German schools of Livonia, Esthonia, and Courland have been compelled to adopt the Russian language; a law has been enacted requiring all children of mixed marriages to be reared in the Orthodox faith; and disciplinary measures have been taken against more than sixty Evangelical clergymen of Livonia. The so-called German provinces are only German in the sense that Germans have composed the ruling classes for 700 years, and by the favor of former Czars have been able to impose their religion and institutions upon the rest of the population. The noble and burgher classes are German by blood. They constitute 200,000 out of a total population of 1,700,000, or less than 12 per cent. The peasantry speak the Lettish or Esth tongue. The Letts, who are allied to the Russian race, and the Esths, a Finnish tribe, have no affection for the German feudal lords, although the former are with few exceptions Protestants. The Government has determined to abolish the special administrative and legislative privileges granted in former times to the Baltic provinces. The Panславists desire to impose the national religion and language on the Germans, who have always excited the jealousy of Russians because, owing not less to their native energy and ability than to the patronage of the Czars, they have been represented in the highest posts of the Government and the army in strikingly disproportionate numbers. Not

long ago an enumeration showed that 24 per cent. of the field officers, 58 per cent. of the staff, and 75 per cent. of the general officers of the Russian army were of German extraction.

Some of the best of the German schools have been closed because they refused to introduce Russian as the language of instruction. In February, 1889, the juristic faculty was reorganized in pursuance of an imperial ukase, so as to give predominance to Russian law and language. By a recent order, religious instruction must be imparted in the language familiarly spoken in each locality, and German teachers are required to be able to speak the Russian and the local language. German pastors who were banished to Siberia for inducing Letts who had embraced the state religion to return to the Lutheran faith, have been pardoned, but not allowed to return to Livonia. The Ministry of the Interior, which has supervision over the foreign confessions, issued a decree in July forbidding collections to be taken in Evangelical congregations for missionary purposes, or remittances to be sent abroad for the support of Protestant missions. In August an imperial edict was published abolishing the old German courts and system of judicature, controlled by the German barons, and introducing the Russian judicial code of 1864, thus assimilating the legal procedure to that of the rest of the empire.

Nihilistic Conspiracies.—One of the leaders of the Nihilist refugees in Switzerland, named Thikomiroff, publicly abjured his revolutionary sentiments, and in January, 1889, was pardoned by the Czar. Shortly after this a new attempt against the life of the Czar was planned in Switzerland. The Russian Minister of Justice was warned of this by disinterested persons, and the inquiries that he instituted resulted in the arrest of many persons in Wilna and other places. Some bombs that were made in Zürich were discovered by the Swiss authorities, who arrested and eventually expelled several Russians. Several bombs were known to have been sent to Russia, but the search for these was ineffectual. Officers of the artillery and other branches of the Russian military service who had formed a secret political club in which a change in the system of government was discussed were found out, and many were arrested in Cronstadt and St. Petersburg and in the provinces, and sent to prison or to Siberia. Instead of having to do with a single revolutionary organization, as formerly, the police came upon traces of different societies having no connection with one another, and pursuing different aims and methods. The Czar again immured himself in Gatchina.

Treaty with Corea.—A treaty of commerce concluded with Corea is expected to open to Russian enterprise the frontier districts bordering on the south Ussuri region of the Amur. Besides the ports of Genssan, Chemalpo, and Fusan, and the cities of Séoul and Yanchuatsin, the town of Kong Chong in the north of Corea is made free to Russian traders, and the Russian Government is at liberty to establish a consulate there. Russians are permitted to acquire a site for a commercial colony. Arms, opium, spirits, and books are the only articles that can not be imported. The duties are lower than those collected at the seaport towns.

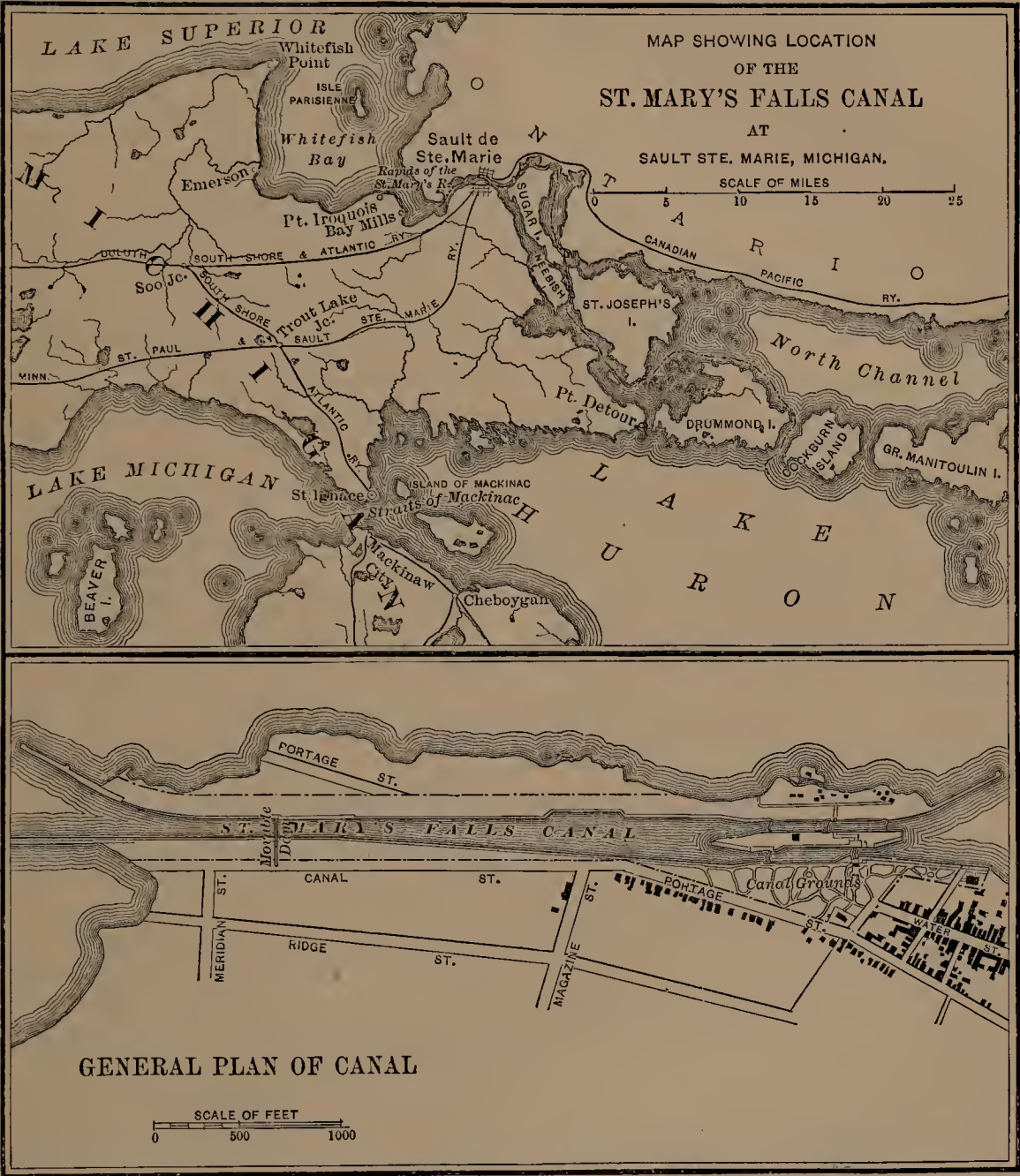
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ST. MARY'S FALLS CANAL. The St. Mary's river connects Lake Superior with Lake Huron, and it is the only outlet for the waters of Lake Superior. The head of the St. Mary's river is at Point Iroquois, near the southeastern corner of Whitefish Bay, and the foot of that portion which is at present navigated by the commerce of the United States is at Point Detour, at the head of Lake Huron. The body of water called St. Mary's river is not a river but a strait, composed of several lakes, connected by narrow and tortuous streams. The fall from Lake Superior to Lake Huron is 20.5 feet, and it occurs in the first 50 miles of the channel navigated by American vessels. One tenth of a foot of this fall occurs between the head of the river and the Falls of St. Mary, a distance of 15 miles; 18 feet are at the falls, or rapids; and the other 2.3 feet are between these and the head of Mud Lake, 35 miles below. The greatest single fall is at the East Neebish, the rapids at the foot of Lake George. The American channel, as navigated through these several bodies of water, is 75 miles long. The lower 25 miles, from the head of Mud Lake to Lake Huron, present an abundance of water. The upper portion begins at Point Iroquois, turns northeast three miles below St. Mary's Falls, passes north of Sugar Island, then east of this island through Lake George, then past the East Neebish to the eastward of Neebish Island into Mud Lake, thence through Mud Lake and Potaganissing Bay to the west of Drummond Island and into Lake Huron. The improvement of St. Mary's river began in 1852, in the construction of the first lock at the "Sault," a grant of land for which was made to the State of Michigan. This canal cost \$1,000,000. The lock had two chambers, each 70 feet wide and 350 feet long between gates, and passed vessels drawing a maximum of 11½ feet. This structure, opened for business in 1855, met the immediate necessities of the early development around the shores of Lake Superior, especially in iron and copper ore productions. The first year's tonnage through the lock was 100,000 tons; five years later it was 400,000; ten years later, 700,000; in 1875, 1,260,000; and in 1880, 1,750,000. By this time the iron ores of Lake Superior were supplying one third of the ore for the total pig-iron production of the United States.

Ten years had not elapsed from the completion of the first canal and lock before the rapid increase of tonnage demonstrated the necessity of another structure, with largely increased capacity. The construction of the lock now in use gave this; and it is one of the grandest engineering works of the time. The dimensions of this work, known as the second canal, are, length 515 feet, width 80 feet, and 17 feet of water over the miter sill. It was opened for business, Sept. 1, 1881. While this work was in progress, extensive improvements were made in the canal above the lock, and at different points in the river below, by which was obtained nearly an equal depth of water with that carried by the lock—

16 feet. This increased capacity through the entire strait was advantageous to the shipping on the lakes and to all producing interests. The increased draught of water largely augmented the vessel-carrying capacity and diminished the cost of transportation. The saving in the cost of iron-ore transportation alone from Lake Superior in the following year was \$800,000. The cost of this canal was \$2,000,000.

But the tonnage once more began to crowd the lock capacity, and Congress moved in the direction of relief by the passage of a resolution, Dec. 29, 1881, calling on the War Department for information as to what additional works were necessary on the St. Mary's river and St. Mary's Falls to complete the improvements thereof in a manner to serve the interests of the commerce of the northern lakes. Under this call, Gen. Godfrey Weitzel, then in charge, reported, Jan. 14, 1882, recommending "the construction of a dry dock on the canal, the improvement of the Hay-Lake channel, and the immediate construction of another lock." The new lock, which occupies the site of the original lock of 1855, is 800 feet long, 100 feet wide, and has 21 feet of water over the miter sill. The estimated total cost of these works is, for the Hay-Lake channel, \$2,659,115; for the lock and canal, \$4,738,865. Hydraulic machinery operates the gates and valves of the locks, and a movable dam has been constructed, designed to stop the flow of water through the canal or locks whenever an accident to the locks or the banks below requires it. These improvements have rendered no longer pertinent the objections that were made, early in 1879, to the effect that "the greatest obstruction to this water-way is in the St. Mary's river, between Lake Superior and Lake Huron, the present condition of which permits vessels of twelve feet draught to pass; and although the Government has made large expenditure in the construction of a ship-canal for vessels drawing sixteen feet of water, it can not be available for the purposes designated until such further improvements are made to the river below as will give the required depth of water, and thus save the present loss of 30 per cent. in the carrying capacity of modern lake vessels, and the annually recurring loss of so much of the public wealth." It is the purpose of the engineers to give a depth of twenty-one feet through the entire chain of lakes by deepening the St. Clair flats and the Lime-Kilns channel; but, as the only lock is on the Sault St. Marie, the work is begun there. Ultimately, the deepening of all the lake channels will admit of the use of vessels of 2,500 tons burden. Boats of great depth carry coal and freight from Buffalo to the ports of Lake Superior, and bring return cargoes of grain and iron ore. The ore enriches manufacturing cities like Cleveland, Buffalo, and Pittsburgh; and the grain contributes largely to the commerce of the city of New York. The distance from the St. Mary's Falls Canal to the head of Lake Superior is 397 miles. Early in 1888 the report of the United States engineer in



charge of the improvements at the St. Mary's Falls Canal stated that, for the year 1887, the down freight was 1,749,536 tons, and the up freight 1,745,313 tons. The total freight-charges, including terminal charges, were \$10,075,-153; average freight-charges per ton per mile, 23-100 of a cent. The United States Bureau of Statistics gave the average freight-charges per ton per mile on the trunk railroads for 1886, in round numbers, at one cent. To realize what this benefit means, it is only necessary to show that it represents more than ten times the cost of improving the canal and St. Mary's river to that date, or about six times the estimated cost of the proposed further improvement. At the close of 1888 a similar report stated that the canal was open to navigation from May 7 to Dec. 11.

In the 212 days of navigation, in 1888, there passed through the St. Mary's Canal an aggregate tonnage of over 6,200,000. This, for seven months of navigation, would average 900,000 a month, or nearly double the usual monthly tonnage of the Suez Canal. In 1889 the tonnage was 7,400,000. In other words, St. Mary's Canal does as much in six or seven months as the Suez Canal does in an entire year; and it has one quarter of all the seaport tonnage of the United States. An equally noteworthy fact is the steady increase in the size of vessels. Thus, while there was a decrease of 1,552 vessels, there was an increase of 37 per cent. in the registered tonnage, and an increase in the average cargo of 40 per cent. The average cargo of registered vessels in 1887 was 644 tons; in 1888, 876.6 tons. The to-

tal valuation of commerce through the canal in 1888 was \$82,156,020, an increase of \$3,000,000 over 1887. It was expected that no material increase would be shown, because of the completion of three new lines of railroad which compete with the canal. The report ascribes this result to the increase in shipments of grain, manufactured iron, and copper. The annual report for the fiscal year ending June 30, 1889, includes some of the facts noted above, and brings them down to a later date. During the past fiscal year the tonnage passing through this canal has been much greater than in any other year since its construction, and far in excess of the business of the Suez Canal, in the months during which the St. Mary's river was open to navigation. About 8,500 vessels, not counting rafts, etc., passed through the St. Mary's Canal, carrying 6,932,203 tons of freight. This vast quantity was by no means made up of iron ore, coal, and wheat alone; it included, besides 1,854,000 tons of coal, 3,414,000 tons of iron ore, and 13,084,000 bushels of wheat, in round figures, over 30,000 tons of copper, 3,500 tons of silver ore, 2,152,000 barrels of flour, 59,000 tons of manufactured iron, 207,000 barrels of salt, 33,700 tons of building-stone, 276,180,000 feet of lumber, and 351,000 tons of miscellaneous freight. On July 16, 1889, notice was given that the draught of vessels passing through the canal might be increased to fifteen feet and three inches. The Government of the Dominion of Canada has seen the importance of a canal at this point, and surveys have been made looking to the construction of a canal around the falls of the St. Mary's river on the Canadian side.

SALVADOR. a republic in Central America. Area, 18,720 square miles; population, Jan. 1, 1888, 664,513; capital, San Salvador; population, 16,327.

Government.—The President is Gen. Francisco Menendez, whose term of office will expire in 1891. His Cabinet is composed of the following ministers: Foreign Affairs, Justice, and Public Worship, Dr. M. Delgado; Finances, War, and Navy, Dr. S. Mendez; Public Instruction and Charity, Dr. J. Interiano; Interior, J. Larreynaga. The United States Minister, resident at Guatemala, is Lansing B. Mizner. The American Consul at San Salvador is Thomas T. Tunstall. The Consul-General of San Salvador in the United States is Antonio Pérez Bonalde.

Finances.—The internal debt amounted in 1888 to \$6,723,590; the income in the same year was \$3,603,000, and the outlay \$3,523,000. During the summer the London and Southwestern Bank of London floated for the Government a 6-per-cent. railroad loan of £300,000 at 95½, to run till Aug. 15, 1914, with a 2-per-cent. per annum sinking-fund attached to it, for the completion of the Sonsonate and San Salvador Railroad from Ateos to San Salvador. Salvador has no other foreign indebtedness.

Army.—The strength of the regular army is 2,000 men; of the militia, 10,000.

Communications.—The following lines of railway are in operation: From Acajutla to Sonsonate, 24 kilometres, and from Sonsonate to Amate Maria, 71 kilometres; in course of construction, the line from Amate Maria to San Salvador.

The length of wire of telegraph lines in operation was 2,323 kilometres in 1888, with 83 offices. The number of messages was 356,779 in the same year; the receipts \$99,354; and the expenses \$82,494. A telephone service connects San Salvador with Santa Tecla and Santa Ana.

In 1887 the 38 post-offices handled 725,622 items of mail matter, 266,033 being letters, 487,272 newspapers; 247 postal-cards; 1,839 sample packages; 433 registered letters; and 6,309 Government dispatches.

Commerce.—There has been a steady increase in foreign trade, owing to the remunerative prices that coffee and indigo have brought for several years past. The imports rose from \$2,134,095 in 1885 to \$2,427,643 in 1886; \$3,343,820 in 1887; and \$4,076,404 in 1888; while the exports, inclusive of specie and bullion, increased as follows: 1885, \$5,716,428; 1886, \$4,754,649; 1887, \$5,242,697; 1888, \$6,707,024. The American trade exhibits these figures:

FISCAL YEAR.	Import into the United States.	Domestic export to Salvador.
1886.....	\$1,261,275	\$470,541
1887.....	1,059,341	477,125
1888.....	1,473,480	645,802
1889.....	1,662,162	690,884

Mines and Quarries.—The number of mines and quarries, many of them being worked in Salvador, in 1889, was 180, of which two were limestone; six flagstones; two argentiferous lead, one tin and lead, one rock crystal, one marble, one tin, three non-argentiferous lead, nine iron, fifteen chalk, one quicksilver, twenty silver, one hundred gold and silver, seven copper, four coal, and five argentiferous copper.

Education.—Public instruction is free from supervision by the Church in Salvador, and is gratuitous and obligatory. The number of primary public schools in 1888 was 559—375 for boys and 184 for girls. The average attendance during the year was 21,200, against 11,468 in 1874. There are three grammar-schools, attended by 343 pupils. At the capital the Government supports two normal schools and a polytechnic institute, the number of pupils aggregating 294. In the National University—reorganized on Feb. 15, 1886—98 studied law in 1888, 59 medicine and surgery, 13 chemistry, and 10 engineering.

SAMOA, a kingdom in the western Pacific Ocean, occupying fourteen volcanic islands. Treaties of commerce were concluded with the United States on Jan. 17, 1878, with Germany on Jan. 24, 1879, and with Great Britain on Aug. 28, 1879. By the convention of Sept. 2, 1879, the town and district of Apia were placed under a municipality, at the head of which were the consuls of Germany, Great Britain, and the United States. In 1887 King Malietoa was seized by the Germans, deported on a war-vessel, and held in captivity in the Cameroons and the Marshall Islands.

Statistics.—The area of the islands is 2,787 square kilometres, and the native population in 1874 was 34,265 persons, of whom 16,568 were on the island of Upolu, 12,530 on Savaii, and 3,746 on Tutuila. There are besides about 300 whites and 1,000 laborers on the plantations, imported from other islands. The natives belong to the Polynesian race, and profess Chris-

tianity. The chief articles of importation are clothing, hardware, iron manufactures, arms and ammunition, provisions, drinks, animals, and coal. The Germans have plantations in Upolu, comprising the greater part of the cultivated land on the north side of the island, their area being 9,260 acres. They cultivate cotton for three years after clearing the land, then plant cocoanut palms and sow to grass, and, when the trees have a growth of six years, cattle are admitted to graze the land. There are 500 or 600 tons of copra or dried cocoanut-kernels exported. Coffee of superior quality is also cultivated, and the culture is extending. The laborers are brought from the Solomon, New Hebrides, New Britain, New Ireland, Ellice, and Gilbert Islands, and while on the plantations they are well-fed and cared for. (For maps of the islands, see the "Annual Cyclopædia" for 1886 and 1888.)

The Samoan Question.—The firm opposition of the United States, and a change in the attitude of Great Britain, impelled Prince Bismarck before the beginning of 1889 to restrain the annexationist proceedings of the German consular and naval authorities in Samoa. A formal arrangement to respect the neutrality of Samoa existed between Germany and England, and with the United States there was a diplomatic understanding to the same effect. Yet at the Washington Conference of 1887 the English Government was willing to agree to German predominance. The powers agreed at the conference that the neutrality of Samoa should be respected, and that the Samoans might select their own rulers. The Samoan treaty with the United States concedes the same privileges that had been or might in the future be granted to any other government. The German consul, Dr. Knappe, when informed by Capt. Brandeis, Tamasese's German adviser, that he was going to make peace with Mataafa, owing to lack of ammunition and the desertion of his men, induced the naval commander to send a party of marines against Mataafa to enforce disarmament. This action, which resulted in the combat of Dec. 18, 1888, and the killing of 20 and wounding of 30 Germans, had no other motive than a desire to bring about the German annexation of the islands. When Prince Bismarck, on Jan. 27, 1889, said in the Reichstag that Germany and England were going hand in hand in Samoa, he was told by Lord Salisbury, in a dispatch to the British ambassador at Berlin, that England declined any responsibility for the conflict between the German Government and a part of the inhabitants of Samoa. Before the warlike operations of December, 1888, Prince Bismarck had directed the consul at Apia to restrict his action to the protection of the lives and property of Germans. Capt. Fritze, the German naval commander, referred Capt. Leary, who protested against the violation of the property of Americans by German marines, to the consul; but in January, 1889, the Chancellor instructed naval officers hereafter, before taking any action, to examine both the political and the military grounds. On Jan. 8 Count Bismarck telegraphed to the German consul that annexation was impossible, on account of the agreement with the United States and England. Tamasese was recognized as King not only by Germany but by Great

Britain; yet the Samoans flocked to the camp of Mataafa. The German authorities declared war against Mataafa, proclaimed martial law, bombarded villages, searched English vessels, destroyed the property of Americans, suppressed the English newspaper in Apia, assumed control of the post-office, arrested British and American citizens, and threatened to bombard Apia. Admiral Kimberly sailed for Samoa on the "Trenton," with powers to inquire into the situation and the acts of the Germans, and to oppose their subjugation of the native Government as a violation of a positive agreement between the treaty powers. The German Government, which had requested the co-operation of the United States, was informed that the American Government was willing to aid in the restoration of order on the basis of the preservation of the complete independence of Samoa. Secretary Bayard protested to Count Arco-Valley that the German authorities in Samoa overstepped the bounds recognized in the law of nations when they assumed to subject American citizens in Samoa to military law. Prince Bismarck telegraphed orders to the naval commander to withdraw the proclamation of martial law, as far as it applied to foreigners, and to Consul Knappe (who was shortly afterward recalled) to retract the demand he had made to have the administration of the country temporarily given into his charge, and to desist from the control of the administration. In the diplomatic appropriations Congress voted \$100,000 for the purpose of establishing a coaling-station at Pango Pango harbor, and \$500,000 for the execution of the treaty obligations of the United States in Samoa, and the protection of American rights. Consul Sewall, who was objectionable to the Germans, was asked to resign. The English consul in Apia had at first declared that the proclamation of Jan. 19 had no validity as respects British subjects, but when the German naval commander issued a counter-declaration that Englishmen were subject to martial law, he announced that he had been officially informed that the German Government had declared war against the Samoan Islands, and therefore advised English captains of vessels to submit to searches for contraband of war.

On Jan. 19 Prince Bismarck proposed to the Government of the United States a renewal of the conference of 1887. Mr. Bayard accepted the invitation, on condition that in the mean time belligerent action should be suspended. In his letter the Chancellor renewed the declaration made in 1887 that Germany would not call in question the independence of Samoa nor the equal rights of the treaty powers. The German authorities in Samoa, in the beginning of March, withdrew their decree establishing martial law, and abandoned the right of search. Mataafa remained in his intrenched camp with his army of 6,000 warriors. The German consul could not induce him to agree to terms of peace involving a preponderant German influence in the administration, nor would he consent to lay down his arms, but he agreed to keep a truce during the diplomatic negotiations. Tamasese, whose following had dwindled to 600 men, remained in the fort at Zuatuanu.

Dr. Stübel was sent to Apia as consul-general

to replace Consul Knappe, and all the acts against which the English and American consuls had protested were condemned by the Chancellor as contrary to international law; and the new consul was instructed that the demand made by Knappe in his negotiations with Mataafa, that Germany should assume the administration of the Samoan Islands and represent them politically in their external relations, as well as his proposition for annexation, was opposed to treaties, and could not be accomplished without the assent of the United States and Great Britain. When Admiral Kimberly arrived, on March 11, he offered to co-operate with the German and British consuls for the re-establishment of peace and order, and admonished both Mataafa and Tamasese to await the decision of the conference.

Naval Catastrophe.—On March 15, 1889, a hurricane destroyed or disabled all the American and German war-ships in the harbor of Apia. The vessels were anchored near together in the harbor, a semicircular bay, which is entered through a break in the coral reef that extends across its mouth. When the storm arose in the night, the engines were set at work to relieve the strain on the cables. Nevertheless the vessels dragged their anchors and were dashed one against another and carried upon a coral reef on the western side of the bay. The German gunboat "Eber" first struck the reef, and was turned keel upward. The Samoans, losing sight of their warfare, ran out into the breakers at the great risk of their lives, and saved 1 officer and 4 men, while 5 officers and 66 men were lost. The German flagship, the "Adler," was lifted by the waves to the top of the reef and thrown over on her side. Of the 130 officers and men, 20 were drowned or killed when the ship capsized; the rest swam to the wreck, and clung to the guns and spars, sheltered from the storm, till they were taken off. The American steamer "Nipsic," by skillful handling, was kept clear of the reef, and run upon the beach. The German corvette "Olga," after striking against nearly every other vessel, was beached on a sand-flat. The British corvette "Calliope," having more powerful engines than any of the other vessels, slipped her cable and succeeded in steaming out to sea, narrowly escaping being thrown upon the reef. The United States steamer "Vandalia" was carried on the reef near shore, and sank. Those who attempted to swim ashore were nearly all drowned, and those who clung to the masts were swept off by the "Trenton," which floated by a few hours later, some of them falling into the water and some on the deck of the vessel. The "Trenton" was thrown on the beach in front of the American consulate. The "Nipsic" lost 7 men; the "Vandalia," 5 officers and 39 men; the "Trenton," one man. The Samoans showed great heroism in rescuing the crews, making no distinction between Germans and Americans. A large proportion of the saved were wounded. About 900 American and German sailors had to be provided for on shore. The "Olga" was got afloat again soon after the storm, which lasted two days. The "Nipsic" was floated on the 23d, but had lost both screw and rudder. The 15 merchant vessels in the harbor were either sunk or stranded.

The Conference.—At the Samoan Conference of 1887, Germany proposed that the three powers should appoint a single mandatory to supervise their common interests, who should be nominated for five years by the power having the predominant interests in Samoa. He was to have the post of Prime Minister to the native but merely nominal King. This scheme, which would virtually convert Samoa into a German dependency, was supported by England; but the United States would not listen to it, and proposed that there should be three foreign advisers, one nominated by each power, who should preside over the departments of foreign affairs, internal affairs, and finance respectively, and should form with the two kings the governing council.

The new conference met on April 29. The representatives of the United States, appointed by President Harrison shortly after his inauguration, were John A. Kasson, William Walter Phelps, and George H. Bates. The English plenipotentiaries were Sir Edward B. Malet, British ambassador at Berlin; Charles S. Scott, minister to Berne, who was formerly secretary to the Berlin embassy; and J. A. Crowe, commercial attaché at Paris, who had acted as English representative at the Congo Conference. The German representatives were Count Herbert von Bismarck-Schönhausen; Baron Holstein, formerly of the German legation at Washington; and Dr. Krauel, all of the German Foreign Office. Count Bismarck presided at the meetings.

About the time when the conference began its labors, Malietoa was brought back to Samoa and set free. A sub-committee was appointed to consider the future government of the islands, and another to form a plan for adjudicating upon private titles to lands, which were in the greatest confusion, the claims of foreigners embracing an extent of land much greater than the entire area of the islands. A general act was elaborated, which was signed by the plenipotentiaries on June 14. The first article contains a declaration respecting the independence and neutrality of the islands, the equal rights of citizens of the three signatory powers, and the right of the Samoans to elect their own King and choose their form of government, over which neither of the powers shall exercise a separate control. With a view to prompt restoration of peace and order, the powers agreed to recognize as King the deposed Malietoa Laupepa. The second article simply declared that the new treaty should prevail over any conflicting provisions in former treaties. The third article provided for the creation of a Supreme Court, to consist of a single judge, who shall be named by the three treaty powers, or, if they fail to agree, by the King of Sweden and Norway, and may be removed for cause at the request of a majority of the signatory powers. The Supreme Court shall have jurisdiction of all questions arising under the treaty, and any question arising among the Samoans respecting the election of kings or chiefs, shall not lead to war, but shall be referred to him for decision; and any difference between either of the treaty powers which they shall fail to adjust by mutual accord shall not lead to war, but shall be presented for decision to the chief justice. He may recommend to the Samoan Government laws

for the punishment of crime and the protection of good order, and for the collection of taxes in Samoa outside the district of Apia. He shall have exclusive jurisdiction over: 1, all civil suits concerning real property; 2, all suits between natives and foreigners; 3, all crimes committed by natives against foreigners or by foreigners against natives, except in Apia. Questions between masters and seamen of their respective nationalities remain under the jurisdiction of the consuls. The fourth article provides that there shall be no more alienation of lands by the natives, except town lots in Apia and agricultural lands that are not needed for support of the native population. The latter may be leased to foreigners for forty years, subject to the approval of the Samoan King and the chief justice. All titles to lands claimed or occupied by foreigners will be examined and passed upon by three commissioners to be named by the three treaty powers, and shall not be allowed unless conveyed by the rightful owner for a reasonable consideration and properly described and identified. All disputed claims are to be referred for final decision to the chief judge. When land has been cultivated and improved, a defective title may be made complete by the payment of an additional sum to be ascertained by the commission and approved by the court. Continued occupation and cultivation for ten years establish a title by prescription. All claims based on mere promises to sell or options to buy, or where the articles of conveyance give no description sufficiently accurate to enable the commission to define the boundaries of the property, or where no consideration was expressed, or where the consideration was not paid in full or was manifestly inadequate, or finally in cases where the consideration for the sale, lease, or mortgage was firearms or munitions of war or intoxicating liquors, the claims must be rejected. The commission, which shall complete its labors before the end of two years, is required to survey the lands of all Europeans, and register all valid titles. The fifth article relates to the municipality of Apia. The tax-payers will elect six councilors, but the president of the council and chief executive officer of the municipality will be appointed by the three powers, or, if they fail to agree, on any person, by the chief executive of Sweden, the Netherlands, Switzerland, or Brazil. He may act on the joint instructions of the three powers, but not on the separate instructions of one of them; and may advise the Samoan King, and shall give such advice when the King requests it. He will have charge of the municipal revenues, rendering account of receipts and disbursements to the King and the Municipal Council. He shall superintend the harbor and quarantine regulations, and shall have charge of the administration of the laws and ordinances applicable to the municipal district. The sixth article requires that all foreign goods must be imported through the port of Apia; but coal and stores for the naval stations may be landed at the harbors reserved for the several powers, and are not subject to duty. The customs duties, license taxes, and other taxes collected in the district of Apia, are available for the support of the municipal government, except license taxes paid by Samoans and the

native capitation-tax of \$1 per annum, the proceeds of which must be turned over to the Samoan Government. Imports of alcoholic liquors, tobacco, and sporting arms and gunpowder are taxed at specific rates, and all other merchandise pays 2 per cent. *ad valorem*. Export duties of 1½, 2, and 2½ per cent. respectively are levied on cotton, coffee, and copper. Imported laborers pay a capitation-tax of \$2, and for every trade, profession, and store a license duty is charged. All revenues collected outside the district of Apia shall be for the use of the Samoan Government. The seventh article prohibits the sale to natives of intoxicating liquors of any kind, and the importation of firearms except for sporting, for which licenses must be obtained from the president of the Municipal Council. The sale of arms to Samoans or other Pacific islanders by foreigners is also prohibited. The seventh article provides that the treaty shall remain in force until changed by the consent of the powers; that at the end of three years the powers shall consider what ameliorations may be introduced, and in the mean time special amendments may be adopted by the consent of the three powers and the Samoan Government. The treaty shall be ratified within ten months of the date of the signature, and in the mean time the powers respectively engage to adopt no measure that is opposed to it, but to give effect to its provisions prior to its ratification.

The Restoration of Malietoa.—After the powers had come to an agreement at the conference, Tamasese, who had refused to make peace at the demand of Admiral Kimberly, except on the basis of Mataafa's submission, agreed to peace at the prompting of the German authorities. Malietoa and the three other exiled chiefs were brought back on a German gunboat, arriving in Samoa on Aug. 11, and Herr Stübel informed Malietoa that he was at liberty to do as he pleased. Mataafa met him and offered to resign the royal powers into his hands. Malietoa declined to assume control of affairs until a satisfactory settlement could be made. The people preferred Mataafa for King, and when the tribes met in October for the election of their chief, King Malietoa, in the presence of the foreign representatives, praised Mataafa, and recommended that he should be elected. The assembled people acclaimed Mataafa as King. Tamasese's followers did not assent to the election, and some of them on the island of Savaii attacked some of Mataafa's partisans. A force of several hundred collected to punish the aggressors, and a fight took place in which 1,000 men were engaged, and many were killed. The American representatives in Samoa would not countenance the election of Germany's enemy, and pressure was brought to induce the Samoans to choose Malietoa, who was elected King by a later assembly, and was recognized as such by proclamations issued by the consuls of the three powers on Nov. 9. On Dec. 16 a large number of the chiefs who had been attached to Tamasese's party came in a body to Malietoa and announced their allegiance. On Dec. 24 the King issued a proclamation in which he prohibited the sale, lease, or mortgage of any land to foreigners, the importation of arms or ammunition, and the sale of intoxicating liquors.

SANTO DOMINGO, a republic occupying the eastern portion of the West Indian Island of that name, the western portion being Hayti. The area of the republic is about 18,000 square miles; the population in 1887 was 504,000; capital, Santo Domingo; population, 20,000.

Government.—The President is Gen. Ulises Hereau; the Vice-President, Don Manuel Maria Gautier. The Cabinet is composed of the following ministers: Interior and Police, Gen. Wenceslao Figueredo; Foreign Affairs, Gen. Ignacio M. Gonzalez; Justice and Public Instruction, Gen. Alejandro Wos y Gil; Finance and Commerce, Gen. Juan Francisco Sanchez; War and Navy, Gen. Federico Lithgoro. The *Chargé d'Affaires* of the United States is Frederick Douglass, resident at Port-au-Prince, Hayti. The American Consul at Puerto Plata is Thomas Simpson. The Dominican Consul at New York is Don Enrique Henriquez.

Army.—In June Congress passed a bill rendering military service obligatory on all citizens capable of bearing arms.

Finances.—The indebtedness of the nation on Jan. 1, 1889, stood as follows: home debt, \$2,931,376; foreign, £1,520,700, bearing 6 per cent. interest, and an old balance due abroad, gradually being canceled, of \$234,250. There is an old balance due by Hayti of \$824,378. The income in 1887 was \$1,484,434; the outlay, \$787,164. During the summer the Paris Crédit Mobilier secured the privilege of establishing at the city of Santo Domingo a national bank, with the exclusive privilege of circulating bank-notes to the amount of twice its capital.

Communications.—The only line of railway in operation is that connecting Sánchez with La Vega, 115 kilometres, with a telegraph line running alongside. There is in course of construction the Santo Domingo Central Railroad by a New York corporation. The line will run from the southern coast of the island to a salt mountain in which is an inexhaustible supply of fine rock-salt.

The land lines of telegraph measure only 254 kilometres, but the net is now rapidly extending over the island. The steamship lines calling regularly at Dominican ports are: the New York Clyde line, touching at Turk's Islands and Cape Hayti; two Spanish lines keeping up communication with Havana, St. Thomas, and St. John's, Porto Rico; the French transatlantic line, whose steamers run from Havre to West Indian ports; the Hamburg line; and the line between Liverpool and West Indian ports, touching at Sánchez, Samaná, and Santo Domingo.

In 1887 there were 83 post-offices, which handled 27,727 items of mail matter, the receipts being \$24,994, and the expenses \$17,650.

Commerce.—The imports amounted in 1888 to \$1,992,885, compared with \$2,056,928 in 1887; the export was \$2,520,983, against \$2,660,471 in 1887. The chief articles exported in 1888 were tobacco, sugar, coffee, honey, wax, cabinet-woods, and dye-woods. The export of tobacco, which goes almost exclusively to Bremen and Hamburg, fluctuates between 20,000 and 50,000 seerons. During the past five years the amount of sugar imported into the United States from Santo Domingo has more than doubled. The American trade exhibits the following figures:

FISCAL YEAR.	Import from Santo Domingo.	Domestic export to Santo Domingo.
1886	\$1,656,181	\$1,017,285
1887	1,380,126	1,014,414
1888	1,450,392	792,560
1889	1,454,261	1,150,651

Education.—The number of primary public schools in 1887 was 200, attended by 8,000 pupils. Public instruction is generally very backward; there should be schools enough to teach 64,000 children.

SERVIA, a monarchy in southeastern Europe. The legislative powers are vested in the Skupsh-tina, which is composed of 117 members elected by the nation. The present King is Alexander I, born Aug. 14, 1876, who succeeded to the throne by the abdication of his father, Milan Obrenovitch, on March 6, 1889. During the minority of the King the executive power is intrusted to a regency composed of J. Ristich, Gen. J. Belimarkovich, and Gen. H. S. Protich. The ministry was composed in 1889 of the following members: President of the Council and Minister of Foreign Affairs, Gen. Sava Gruich; Minister of Public Works, Peter Velimirovich; Minister of Finance, Dr. Michael Vuich; Minister of Public Instruction and Worship, Svetozar Milosavlyevich; Minister of Justice, Gregor Gersich; Minister of Agriculture and Commerce, Stefan R. Popovich; Minister of the Interior, Constantine Taushanovich; Minister of War, Col. Demeter Djuvich.

Area and Population.—The area of Servia is 48,589 square kilometres. The population, as computed at the end of 1887, is 2,010,612, composed of 1,028,606 males and 982,006 females. The number of marriages in 1887 was 22,555; of births, 93,911; of deaths, 50,481.

Finances.—The budget for 1889-'90 shows a deficit of 3,000,000 dinars, to which must be added 11,000,000 dinars for the deficit of 1888-'89, and 9,250,000 dinars to be paid for the expropriation of the Franco-Servian railroads. A loan of 25,000,000 dinars was raised, secured on the receipts of the railroads. The debt on Jan. 1, 1889, amounted to 256,146,520 dinars.

The Army.—The effective of the permanent army in 1889 was 13,213 men, with 132 guns. The war strength is estimated at 70,000 men, with 264 guns, exclusive of the reserve army and the Landsturm.

Abdication of the King.—The new Servian Constitution was adopted by the Grand Skupsh-tina on Jan. 2 1889, by a majority of 494 votes against 75. On Jan. 5 the ministry of Nikola Cristich resigned. The King was unwilling to appoint a Radical Cabinet, and applied first to Jovan Ristich, but could not induce that statesman to form a Cabinet, and therefore decided to retain the old Cabinet as long as possible. The Radicals refused to take office unless Tauschanovich, President of the late Grand Skupsh-tina, a revolutionist who had been condemned to death for participation in the Timok valley uprising, should be given the portfolio of the Interior. They also demanded that the outlawed Pashich should be amnestied. The King was deserted by Garashanine and the rest of the Progressists. His throne was at stake, and he determined to appoint Liberal prefects and sub-prefects, and

attempt by pressure on the people, notwithstanding the new Constitution, which is in many particulars the most liberal in Europe, to bring in a Liberal majority in the elections for the regular Skupshtina in the autumn. The Radicals were furious at the King's determination to exclude them from office, and Cristich was unwilling to play a game so dangerous, and on March 2 told King Milan that it was impossible for him to remain in office. On March 6 King Milan abdicated the throne in favor of his son, in the presence of the ministers and chief dignitaries and the members of the diplomatic body assembled in the Konak to celebrate the anniversary of the erection of Serbia into a kingdom in 1882. On the following day he issued a manifesto to the Servian people, in which he declared that his abdication was the realization of an intention formed long before. He said he had endeavored to constitute Serbia as a modern state, and to win the support of the powers interested in the maintenance of the Berlin Treaty. His strength was exhausted, and he felt it to be safer to place the interests of Serbia and of his son in the care of the regents whom he had selected, who are capable of leading the country along the path of progress and of so conducting Serbia's foreign policy that peace and order may be preserved in the Balkan Peninsula.

The regents, who had all been connected with the Liberal party, on March 7 published the list of ministers, all of whom were chosen from the Radical party. The Minister of Foreign Affairs sent a circular note to the Servian ministers in foreign countries, in which he informed them of the change of government, and said that the first duty of the Government would be to work out the legislation that was necessary to carry into effect the provisions of the new Constitution, and that its chief task would be to regulate the finances by means of a rational development of the financial resources and extreme economy. One of the first acts of the Government was to grant an amnesty to the leader of the Radicals, Pashich, who became President of the Skupshtina in the autumn.

The Regency.—The circumstances that had compelled King Milan to abdicate arose from the policy that he had pursued from the beginning of his reign, both in domestic and foreign affairs, and had forced upon the people against their will, repeatedly revealed in the elections. Under the semblance of a modern constitutional monarchy, he had a bureaucratic system that galled the spirits of the Serbs, who were attached to the patriarchal democracy of Slavic self-government, which could only be maintained by police tyranny, by falsification of elections or suppression of the legislative will, and by grinding taxes. When the clergy lifted their voices against his oppression, he overthrew the Church, banishing the Metropolitan Michael and the obnoxious bishops. The Serbs were attached to the militia system, in which every man has his rifle in his house, but Milan introduced a standing army and the burdensome compulsory service. The popular predilection for Russia was based not only on gratitude for Russia's protection in the past and the conviction that only by her aid will the provinces occupied by Austria and the Servian districts in Turkey be reunited

to Serbia, but on ethnical and religious affinity and the desire to preserve the Slavic institutions and national life. The failure of the Union Générale and the reverse at Slivnitsa gave a fatal blow to the system that Milan's oratorical and political talents had enabled him to uphold so long, and the hostile political activity of his wife and their consequent divorce weakened his position to such an extent that the Radicals triumphed in the elections for the Grand Skupshtina, while the King's party, the Austrophile Progressists, were wiped out of existence. Milan was unwilling to reign longer when the reversal of his policy became inevitable, even if by submission to the people's will he could have purchased the privilege.

The new Government dismissed the political officials who had acted as instruments of repression, and introduced simpler, cheaper, and more popular methods of administration. The legations in London, Rome, and Athens were abolished. The Metropolitan Michael returned, and was reinstated in office, the Metropolitan Theodosius, who had been appointed in his place, retiring into a monastery. The deposed bishops were likewise restored to their sees, and the decrees of 1883, interfering with the composition of the synods and other infractions of the rights of the Church, were remedied. A meeting of the Progressist party was broken up by rioters on May 26, and Garashanine, against whom the anger of the mob was chiefly directed, enraged the people still further by firing a revolver at his assailants. As a student was killed, he was charged with the homicide and confined in a fortress. The tobacco monopoly that had been farmed by the Vienna Länderbank, an association of Austrian and French capitalists, was bought back by the Government. The Servian railroads were managed by a French company. On June 3 the Servian Government, on the ground of alleged irregularities, canceled the contract, and assumed possession of the line and rolling-stock, offering to purchase the property of the company, which had made a great deal of money while serving the public very badly. Although the employés of the company were French, the stock, which lost two thirds of its value through the confiscation, was held mainly in Germany and Italy. By a settlement reached through the intervention of the French Government, the company received 10,000,000 francs. M. Persiani, the Russian representative at Belgrade, was advanced to the rank of a minister plenipotentiary. The Servian agent at Sofia was recalled. The Servian Government announced that it would not renew the commercial treaty with Austria-Hungary expiring in 1890. After a national and religious celebration on June 27 at Krushevatz of the five hundredth anniversary of the battle of Kossovo, Alexander was anointed as King in the monastery of Zitcha on July 2. The Russian minister was the only foreign representative invited to be present. On resuming his office as head of the Church on June 9, Archbishop Michael issued a dispensation ratifying all the acts of his predecessor, including the royal divorce, which he had before declared illegal, but was now constrained to approve by conditions made by the Government, which was pledged to uphold the divorce.

The Government alarmed the Bulgarian authorities by distributing 30,000 rifles among the people as a preparatory measure toward creating a national militia and as reparation for the act of the Progressist Government in disarming the rural population after the revolution of Sait-char. A census of all men in the kingdom was taken, with the intention of arming the entire adult male population, numbering about 350,000 men capable of bearing arms. The second class of reserves was armed subsequently, and the Government negotiated for a supply of 100,000 more breech-loaders from abroad.

The general election was held on Sept. 14, under a provisional electoral law dividing the country into 25 urban and 15 rural districts, each of which returned as many deputies as there are multiples of 4,500 in the number of its inhabitants. The voting was by district tickets. The names of the candidates had to be handed in between the end of June and Sept. 1, and could not be recalled or changed. The Progressists put forward no candidates. The Liberals, who are willing that Servia should become an autonomous province of Russia, like Saxony in Germany, are outnumbered in the new Skupshchina six to one by the Radicals, who are Russophile, but desire, above all, that Servia shall be independent. The house is composed of 102 Radicals and 15 Liberals. Pashich was elected president. On Dec. 10, in pursuance of its policy of rescuing Servia from its tributary position toward foreign capitalists who have drawn large profits from the farms and monopolies granted to them by former ministries, the Government confiscated the salt monopoly that was held by the Anglo-Austrian Bank of Vienna, alleging various abuses and breaches of contract.

SILK-WORM GUT. The province of Murcia, Spain, has always enjoyed a practical monopoly of the manufacture of silk-worm gut. Though the industry is small, it has long attracted the attention of silk culturists all over the world. Gut is still made in Sicily; but the quality of the Sicilian product is invariably poor, and as it can therefore compete only with the very lowest grades of the Spanish article, it is hardly possible that there can ever be a profit to the manufacturers. Silk culturists in China, Japan, France, Italy, and the United States have done their best to produce a marketable quality of silk-worm gut; but they have never succeeded, unless the fortuitous manufacture of a few strands of a fair quality can be considered success. In the United States, China, and Japan, a long, heavy gut has frequently been made; but in no instance has the strand had the tensile power of much lighter Spanish gut. The numerous and invariable failures to produce a good quality of it outside of Murcia force the conclusion that there are unique conditions favorable to its manufacture there, and insurmountable obstacles to its manufacture elsewhere.

The town of Murcia, capital of the province of the same name, is the seat of the industry. It is in the midst of what is known as the garden of the province, and has a population of nearly 100,000. This "garden" is about sixteen miles long by a little less than eight miles wide, and is most luxuriant. There are never less than two crops of vegetables in the year; generally there

are three, and sometimes four. The mulberry trees are innumerable, and the leaves are always abundant and wonderfully tender and succulent. To the eye of even the ordinary observer the mulberry tree in Murcia has a richness of foliage beyond what it has elsewhere. Looking from the cathedral tower, the whole garden seems filled with a countless mass of little houses, about which are plantations of mulberry trees. The leaves of the mulberry are the food of the silk-worm, and the dwellers in the little houses almost invariably devote a good part of their time to raising silk-worms.

In order to understand how silk-worm gut is made in Murcia, and why it can not be made elsewhere, it will be quite necessary to note carefully the methods employed in the development of the seed and what is called "the education" of the worms. While the methods hereinafter described are followed almost exactly by the most successful makers of gut throughout Murcia, there are occasional deviations, caused mainly by the peculiarities of an unusual season. An additional fact is that nearly all the makers are what might be called small farmers, and therefore there is not as much systematic care as would result from a larger individual experience. The climate, which is so good for the manufacture of silk-worm gut, is apt to produce in the inhabitants a temperament that leads them to do no more for the worms than is necessary. Murcia has lost its former place as an important producer of silk cocoons, while it has much more than held its place as a producer of gut. At first, the Murcians made gut only from the worms when they had lost the market for cocoons, or were afraid they would lose it. Afterward, one and another turned their product into gut. Step by step the industry increased. To-day there are merchants in Murcia who bid against each other for the raw gut. Every season buyers come from the silk-making districts of France to purchase cocoons. The price offered by the cocoon buyers is determined by the market value of silk; that offered by the buyers of gut is determined by the number of buyers and the approximate amount of silk-worm gut needed for the annual supply. A common device of the gut buyers is to offer a large price at the beginning of the season, which induces the producers to refuse the offers of the cocoon buyers; and afterward the gut buyers decline to continue purchasing except at a price that will be likely to prove remunerative to them. But the competition of the gut buyers generally fixes the average price at a point that is fair; indeed, sometimes they raise it so high that they all lose money.

The seed (that is, the eggs) used in Murcia is that of the *Bombyx mori*, commonly called the Chinese moth, though there are many other Chinese silk-producing moths. The best results are obtained by having the eggs of the *Bombyx mori* imported into the south of France and there developed. The eggs of moths so developed are taken to Murcia. Some care is taken in the selection of the seed, and a great deal of care is taken with its incubation. It is amazing that such consideration should be given to everything during the incubation, and such lack of what silk raisers almost anywhere else would deem merely ordinary attention to the development of

the worm. The only matters about which care is taken are: Not sweeping the rooms in which the worms are placed without first sprinkling the floor with water to lay the dust; seeing that the leaves are fresh and never allowed to ferment; not using the same baskets to bring in fresh leaves as those that are used to carry out the old leaves.

The seeds are placed for incubation during the last part of February or early in March. A few days before placing the seeds for incubation they are immersed for about three hours in water at about the temperature of 50° Fahr. They are then spread out on cloth for a few days (the seeds not being in contact with one another), in a room where a current of air can pass over and dry them. The temperature during the first day should be no higher than 60°; during the second day about 61°; during the third day about 66°; during the fourth day about 68°; and from the fifth day until the larva comes out it should never rise above 70°. Careful washing of the seed and attention to the temperature during incubation generally insure the development of the larvæ in seven days. In all successful silk-raising countries the care of the larvæ is con-

average size was carefully noted, and typical worms were selected for illustration.

The egg after seven days' incubation becomes a worm, which is fed at once for three or four days. The mulberry leaves fed to it are cut up with a sharp knife. If a dull knife is used, the sap is bruised out and the worms do not get proper nourishment and, indeed, find the leaves too tough. The worm is fed by scattering cut leaves over it about eight times—instead of sixty times, as in China. Of course it is given all it will eat, but it is not so carefully watched and fed. Nor is any care taken in regard to temperature, excepting that it is protected from great changes, which rarely occur at this season in Murcia. They are kept in outhouses, low-lying and generally with thatched roofs. They are spread on bamboo shelves and on the floor. At the end of the third day the worm generally becomes dormant for three or four days. When it wakes it is again fed with cut leaves, though more abundantly, for five or six days. It again becomes dormant, sometimes for four days, but generally for not more than two days, and sometimes for only a few hours. At fourteen days of age it eats whole leaves voraciously for about six



1. Female Moth and Eggs (*Bombyx mori*), produces about two hundred eggs. 2, Worm three days old. 3, Worm seven days old. 4, Worm fourteen days old. 5, Worm twenty-one days old. 6, Worm thirty days old. 7, Worm forty-two days old and quite ripe for drawing or spinning. 8, Gut-sack, there being two in each worm.

stant as regards temperature and everything else. In Murcia there is of course some care, but what would seem neglect everywhere else. Nature does so much that she is left to do nearly everything. Consequently, the worm as produced in Murcia approaches in many characteristics to the wild worm. This is to a marked degree exemplified in the moths when they are allowed to develop. The female moth of the thoroughly tended Chinese moth elsewhere scarcely moves after its perfect development. The male seeks it, and after intercourse the male dies and the female lives only long enough to lay her eggs.

The accompanying illustrations, showing the various stages of development from the seed to the silk sack, are as accurate as it is possible to make them. They are drawn from the worms of 1889, which was a good average season, with the exception that it did not produce as much as usual of the Marañón classes of gut. From 100 to 1,000 worms were taken at each stage, their

days, when it again sleeps. Each sleep is generally shorter than the last. At twenty-one days it eats about nine days, consuming an astonishing amount of mulberry leaves. It then takes its fourth and final sleep. Sometimes this sleep lasts more than a day, but frequently it is hardly noticeable. It eats enormously for about ten days; then becomes restless, and finally, when about forty-two days old, it eagerly seeks some twig, branch, or anything upon which it can climb. The watcher then picks it up, and generally finds that it is about to spin.

A comparison of the accompanying illustrations with those showing the growth of the worm in China, Japan, and France make it very clear that the development of the *Bombyx mori* is quite different in Murcia from what it is in any of the great silk-producing centers. The period of development is very long in Murcia; the Murcia worm is large at the age of three and seven days; it is small at the ages of fourteen, twenty-one, and thirty days; and it is im-

mense at forty-two days. The moth, however, is about the same size.

When the worms are quite ready to spin, not an hour before or after, they are thrown into a tub half filled with a strong mixture of vinegar and water. This kills them instantly. They are left in this pickle about twelve hours—generally over one night. This gives a consistency to the silk-bags, of which there are two in each worm. The next morning the worms are taken out of pickle and broken in two, cross-wise. The gut sacks are, with a little experience, easily removed. Each of the sacks is taken at either end, while it is soft, and stretched as far as it will go. If the pickle is strong, the gut is to a certain extent shorter and thicker; if it is weak, the gut is longer and thinner. If it is too strong, the gut pulls out crooked and lumpy and cracked; if it is too weak, the gut has not enough consistency to draw out. When the gut is stretched out as far as it will go, it is thrown on the floor, and the extreme ends almost immediately curl up. The gut is covered with a thin filament called *carne*, or flesh. Toward the end of the day the gut is washed in pure water and hung up where a current of air will pass through and dry it. When it is thoroughly dry, the strands are tied in bundles of from 5,000 to 10,000, and in this state it is sold by weight to those who prepare it for the market.

Those who buy the gut from the makers are frequently called manufacturers. Generally they are termed merchants. The first process through which the gut passes in their hands is the removing of the *carne*, or yellowish covering, from the gut. This is really the tegument of the silk sack, which having been removed leaves only what would have been silk if the worm had been allowed to spin it. Formerly this *carne* was scraped off with the finger-nails or teeth, which made the gut nearly always uneven or flat. It is now done by perfectly harmless processes, though the exact way in which it is done by the different firms is kept secret. Morris Carswell was the first to abandon the old method and invent a new and successful way of removing the *carne*. After the *carne* is removed, the gut is tied up in little wisps and thrown aside. It is kept moist until the process of selection. Women place a piece of cloth between their knees and insert a handful of gut into the cloth, holding it by pressing their knees together. They draw it out piece by piece, and, placing the tail end between their teeth, rub it quickly with a cloth. This removes whatever small particles of *carne* may still adhere and polishes the gut. While one end is held by their teeth, the women examine it and decide what its grade is, so far as thickness is concerned. They put the various grades between the different fingers until the hand is full. It is then left all night rolled up in a cloth in order to get it as nearly straight as possible. The next morning it is all gone over again, strand by strand, and the *estriada*, or crooked flat gut, is separated from the superior or round perfect gut. Some makers are far more particular than others in this selection, and as the *estriada* is sometimes worth not over half as much as the same grade of superior and never more than three quarters as much, the motive for admixing as much *estriada* as possible

with the superior is quite apparent. During the past few years far more attention has been paid to this separation than formerly. The gut having been assorted in regard both to roundness and thickness is assorted with respect to length, and it is then ready for hanking. It is counted in hundreds and knotted at the head, or fuzzy end. Then it is laid away to dry. Next the jute is wound round the tail end of the hank. After this it is straightened, rubbed, and polished, while one end is tied up on a string on the wall. Then it is polished with a cloth. Finally, ten of the hanks are tied together, making 1,000 strands, and ten of these bundles are tied together, making bundles of 10,000 strands. It is now ready for market.

At least one third of the gut is *estriada*. The proportion of the different grades of thickness (beginning with the thinnest—*refina*, *fina*, regular, *padron second*, *padron first*, *maraña*, double thick *maraña*, imperial, and *hebra*) varies from year to year. The efforts of gut manufacturers are always toward making as heavy and as long gut as they can, and yet there is no possibility of overcoming natural tendencies or even of understanding them well enough to make anything like a safe prediction as to what the crop of any year will be as to quantity or quality. In some years, when the raw product is high and all other expenses about equal, the total result may be very profitable to merchants and manufacturers. On the other hand, it frequently happens that years when everything seems favorable show heavy losses. The least disturbance of normal relations by the influx of speculators and new merchants renders it impossible for any one to do business except at a ruinous loss.

It will be seen that all grades of gut cost the merchants the same, all of the raw material being bought at one price by weight, and all having to pass through the same processes of cleansing, assorting, and putting up in marketable packages. It is very difficult for the merchant to estimate closely the cost of each size, quality, and length; indeed, it is impossible for him to do so at all on any single lot. Only by a very accurate knowledge of what he can obtain for the very low grades as well as the most salable grades and lengths, together with the faculty of close practical general averaging of his season's products, can he feel at all certain how to fix a cost price on each of the sizes, qualities, and lengths. All of the superior quality of from 10½ to 12 inches shows a profit. The *maraña*, imperial, and *hebra* of superior quality show a great profit; but the short gut and nearly all of the *estriada* (rough) show a loss. When the assortment gives an unusually large proportion of short lengths and *estriada*, the merchant loses heavily because it is impossible to dispose of much *estriada* at any price. During 1889 gut sold at retail from .05 to 12.00 per 100. Nearly all of the manufacturers mix in a quantity of the *estriada* with the superior, and in this way dispose of this surplus of *estriada* to careless buyers. As there are only two or three experts in this country, and very few anywhere, this is not a hard thing to do. That this is owing to the real difficulty of the subject will be apparent when it is considered that at least 200 people in the United States owe their entire support to the

wages they receive for work done with this material, and at least 20,000 people deal in it and the articles of which it is the most valuable part, to say nothing of the many thousand anglers who constantly use it made up in leaders, flies, gangs, and snelled hooks.

There are some simple rules that may wisely be observed by buyers. The value of gut depends on the length and quality. In this country the most valuable lengths are from 10½ to 12 inches. Tackle-dealers' quotations, unless otherwise specified, are for gut from 10½ to 11 inches. Twelve-inch gut is generally worth about 15 per cent. more than eleven-inch. Eight-inch is worth barely half as much as eleven-inch, and six-and-a-half-inch is worth about one third of eleven-inch. Unless there is an unusually large amount of long gut (that is, from 12 to 18 inches), it finds a good and high market in France. There is never much demand for it here. The quality of gut is determined chiefly by its freshness, color, and roundness. The freshness can generally be determined by the fuzzy end. If this is a clean, clear white, and not parched, the gut is probably new. The color of the gut itself should be a pearly white, without the faintest tinge of yellow, and should be very lustrous. The roundness can be determined by the eye and touch. The hank should be slightly twisted toward the sunlight (not any artificial light), and this will generally bring out the "flecks" or flat dead white spots, which reduce the quality. By passing the second finger and thumb up and down a strand, any roughness or flatness will instantly be felt. The rough strands of good gut are never worth more than three quarters what the round ones are, and are sometimes worth only half. There should not be over 15 per cent. of rough strands, and the gut is unusually good if there are not more than 7 per cent. of rough strands. It is customary for tackle-makers to stain gut before using it. When the gut is stained it should be what is known as "mist color"; that is, it should be the color of clouds (without any rainbow tints). There should not be the faintest tinge of blue or green. Gut appears smaller after it is stained, though it is, if anything, larger. Before attempting to knot gut, it should be soaked in pure water. Thirty minutes should render regular gut pliable, forty minutes will soften padron, marañá should be soaked at least an hour, and double thick marañá not less than three hours. Hebra will require six hours.

While by far the largest demand for silk-worm gut is for manufacture into fishing-tackle, there is a growing demand for it from surgeons, who use it as a ligature. Drs. Arpad G. Gerster and Lange, of New York city, have promoted with great success its use in this country. It was first introduced into surgery by George Fielding, an English practitioner. He, at the suggestion of his assistant, E. Heseltein, employed it successfully in a case of castration, Aug. 10, 1823 ("On the Use of a New Substance, Silk-worm Gut, for Securing Divided Arteries": *Transactions of Medical and Chirurgical Society of Edinburgh*, vol. ii, p. 340). Fielding subsequently employed it in eleven major operations, with uniformly good success. James Wardrop, an English surgeon, published a paper in 1828 describing the method of using silk-worm gut as a ligature in securing

large arteries of the human body. The late Prof. Burow, Sr., of Königsburg, was first to use silk-worm gut as a suturing material in Germany.

SOLDIERS' HOMES. The asylum for aged and disabled soldiers first established in the United States is that near Washington, D. C., for soldiers of the regular army, which is organized on a basis similar to that of the Hôtel des Invalides in Paris, and Greenwich Hospital near London. It was established under an act of Congress passed in 1851, and 200 acres of land were purchased with money levied by Gen. Winfield Scott on the city of Mexico at the close of the Mexican War. This land, three miles north of Washington, has been extended to 500 acres, where have been erected spacious marble buildings in Norman style, the grounds being ornamented with meadows, groves, and lakes, and containing seven miles of beautiful drives, supplying a public park for the city. Here Presidents of the United States frequently occupy one of the smaller buildings as a summer retreat, and here President Lincoln passed some of the last hours of his eventful term of service. The bill that created the Soldiers' Home contained as its first provision the following:

All soldiers of the army of the United States, and all soldiers who have been or may hereafter be soldiers of the army of the United States, who have contributed or may hereafter contribute, according to section 4,819, to the support of the Soldiers' Home hereby created, and the invalid and disabled soldiers, whether regulars or volunteers, of the War of 1812 and of all subsequent wars, shall, under the restrictions and provisions which follow, be members of the Soldiers' Home, with all the rights annexed thereto.

The section to which allusion was made in this paragraph provides that for the sustenance of the Soldiers' Home every non-commissioned officer, musician, artificer, or private of the army of the United States should, if he chose, have the sum of 12½ cents a month deducted from his pay, which sum should be passed to the credit of the commissioners of the Soldiers' Home. It is also provided that all stoppages, or fines adjudged against soldiers by sentences of courts-martial, over and above any amount that may be due for reimbursement of the Government or of individuals, all forfeitures on account of desertion, and all unclaimed moneys belonging to the estates of deceased soldiers, should be also similarly appropriated. Further, it is stipulated with regard to admission to the Home that those entitled to its rights and benefits should be: 1. Every soldier of the army of the United States who has served or who may serve honestly and faithfully twenty years. 2. Every soldier and every discharged soldier, whether regular or volunteer, who has suffered or may suffer by reason of disease or wounds incurred in service and in the line of his duty, rendering him incapable of further military service, if such disability was not occasioned by his own misconduct. 3. The invalid and disabled soldiers, whether regulars or volunteers, of the War of 1812 and of all subsequent wars. It is further provided that no soldier convicted of felony or other disgraceful and infamous crime, or who had been a deserter, mutineer, or habitual drunkard, should be received into the Home without satisfactory evidence of subsequent ser-

vice, good conduct, and reformation of character. Any soldier admitted to the Home for disability who recovers his health so as to become fit again for military service, if under fifty years of age, shall be discharged. All persons admitted into the Soldiers' Home shall be subject to the rules and articles of war in the same manner as soldiers in the army.

An act of Congress approved March 3, 1883, prescribed the regulations now in use in the Soldiers' Home. The board of commissioners of the Home comprises the general-in-chief commanding the army, the surgeon-general, the commissary-general, the adjutant-general, the quartermaster-general, the judge-advocate-general, all *ex officio*, and the governor of the Home.

The number of permanent beneficiaries, regular army soldiers, on Sept. 30, 1889, was 1,147; temporary beneficiaries during the year (regulars), 195; remaining temporary, 53; ex-volunteers lodged from March 1 to Sept. 30, 159; ex-volunteers to whom meals were furnished during said period, 1,257; average number of patients in the hospital, 75 to 80 daily. Within the past three years an additional set of quarters has been built, but more will be required. The average expenses of the Home per annum are about \$200,000. An addition to the receipts of the Home comes from the farm and from other sources—donations, the manufacture of certain small articles, etc.

The National Soldiers' Home, and Branches.—At the close of the civil war the vast number of disabled soldiers soon made it evident that some Government organization should take place in the direction of affording these veterans an asylum, and this caused the institution, by United States statute, of the National Home for Disabled Volunteer Soldiers. The whole number of men furnished by the States during the civil war was 2,778,304; and from the date of the organization of the National Home to June 30, 1888, the number cared for by this institution was 45,725. Besides the National Home with its branches in different parts of the country, to be hereafter enumerated, similar organizations were established from time to time by the States or a portion of them in the North, and a necessarily smaller effort in the same direction was made in the South for the benefit of disabled ex-Confederates. In 1865 Congress passed an act to incorporate "a National Military and Naval Asylum for the relief of the totally disabled officers and men of the volunteer forces of the United States." The incorporators included Gen. Ulysses S. Grant, Admiral David G. Farragut, Hannibal Hamlin, Andrew Johnson, Salmon P. Chase, Edwin M. Stanton, Gideon Welles, Gen. John A. Dix, George Bancroft, Gen. William T. Sherman, Govs. Andrew, Curtin and Morton, Gen. George G. Meade, Gen. Joseph Hooker, Henry Ward Beecher, Gen. Carl Schurz, Hamilton Fish, Horace Greeley, Henry J. Raymond, William B. Astor, James Gordon Bennett, William M. Evarts, Oliver Wendell Holmes, Amos A. Lawrence, Morton MacMichael, Bishop Matthew Simpson, and William Henry Channing. It was further enacted that, for the establishment and support of this asylum, there should be appropriated all the moneys accruing in the war and navy

departments through stoppages of pay, fines, etc., over and above the amounts necessary for the reimbursement of the Government or individuals, all unclaimed moneys due to deceased volunteer officers, soldiers, or seamen, and such donations of money or property as should be made for the benefit of the asylum. This act received many amendments, including the naming of the President of the United States, the Secretary of War, and the Chief Justice of the United States, *ex officio*, as members of the corporation, and declaring that the business of the asylum should be managed by a board of twelve, including the *ex officio* members just mentioned. Finally, in 1873, an act was passed in amendment by which the word "asylum" was changed for the word "home" wherever it might thereafter occur in connection with the institution, which thus became the "National Home for Disabled Volunteer Soldiers." The method of sustenance originally adopted did not prove satisfactory, and, accordingly, all enactments in relation thereto were, under date of March 3, 1875, amended by an act that directed that the support of the "National Home for Disabled Volunteer Soldiers" should thereafter be sustained by direct and specific annual appropriations by law. Acts have also been passed by Congress, from time to time, authorizing the location of branch homes in the different States, and making special appropriations for them. These branches have been established as follows: Central, Dayton, Ohio; Eastern, Togus, Maine; Northwestern, Milwaukee, Wis.; Southern, Hampton, Va.; Western, Leavenworth, Kan.; Pacific, Santa Monica, Cal. One at Marion, Indiana, is in course of construction.

The managers of the National Home are the President of the United States, Secretary of War, and the Chief Justice, *ex officio*; Gen. William B. Franklin, president, Hartford, Conn.; Col. Leonard A. Harris, first vice-president, Cincinnati, Ohio; Gen. John A. Marsh, second vice-president, Atchison, Kan.; Gen. Martin T. McMahon, secretary, 93 Nassau Street, New York city; Gen. James S. Negley, Pittsburg, Pa.; Gen. John C. Black, Washington, D. C.; Gen. Thomas W. Hyde, Bath, Me.; Gen. William J. Sewell, Camden, N. J.; Captain John L. Mitchell, Milwaukee, Wis. The report of the board for 1887 recommended that "aid should be granted to such homes for disabled soldiers and sailors of the Union service as are or may be incorporated by the States and are supported by State appropriations." An act in accordance with this was approved on Aug. 27, 1888. The average number of members of the Home during the six fiscal years ending in 1888 was as follows: 1883, 6,738; 1884, 7,494; 1885, 8,118; 1886, 8,758; 1887, 9,718; 1888, 10,681. The average number present through the whole year increased in the six years named 3,943, or 59 per cent. The number of deaths in the year ending June 30, 1883, was 485; and in that ending June 30, 1888, it was 716. The mortality returns of the Home show that had its members belonged to a class insurable in the life insurance companies, the number of deaths in the same number of corresponding years would have been 450, while the number of deaths among the members of the Home in the last fiscal year given exceeded

this amount by 266, or 60 per cent. These figures show the great disability of the members of the Home.

The report shows, in regard to financial expenditure for the branches, the following: Central, \$711,239.60; Northwestern, \$188,185.29; Eastern, \$182,170.71; Southern, \$255,758.15; Western, \$182,202.25; Pacific, \$150,000; additional expenditures, \$299,500; total, \$1,969,056. This amount is less than the appropriations by the board of managers for the period named by \$121,945.20; and the sum above mentioned as expended was further reduced, through cash sales of articles manufactured at the branches, amounts disallowed, etc., to \$1,579,116.23, leaving a balance on hand of \$14,363.04.

The following are the requirements for admission: 1. An honorable discharge from the United States service. 2. Disability that prevents the applicant from earning his living by labor. 3. Applicants for admission will be required to stipulate and agree to abide by the rules and regulations made by the board of managers or by their order, to perform all duties required of them, and to obey all lawful orders of the officers of the Home. Attention is called to the fact that, by the law establishing the Home, the members are made subject to the rules and regulations of war, and will be governed thereby in the same manner as if they were in the army of the United States. 4. A soldier or sailor must forward with his application for admission his discharge paper and (when he is a pensioner) his pension certificate before his application will be considered, which papers will be retained at the branch to which the applicant is admitted, to be kept there for him and returned to him when discharged. This rule is adopted to prevent the loss of such papers and certificates, and to hinder fraudulent practices; and no application will be considered unless these papers are sent with it. If the original discharge does not exist, a copy of discharge certified by the War or Navy Department or by the Adjutant-General of the State must accompany the application. On his admission he must also transfer his pension certificate to the Home and the moneys secured thereby, and empower the treasurer of the Home to draw the said moneys and to hold and dispose of them subject to the laws of Congress and the rules, regulations, and orders that have been or may hereafter be made by the board of managers.

The number of disabled soldiers cared for by the National Home followed very closely, relatively speaking, the number of men furnished by the States from which they came during the civil war. Thus, the smallest numbers of men from individual States in the National Home were: Two from Florida, which furnished 2,334 men; 5 from Nevada, which furnished 1,080; 6 from Georgia, which furnished 3,486; and 24 from Oregon, which furnished 18,010. The largest number admitted to the Home from the date of its organization from any one State was 7,878, from Ohio, which furnished 313,180; the next largest, 6,945, from New York, which furnished 448,850; the next, 6,160, from Pennsylvania, which furnished 337,936; and the next, 3,566, from Massachusetts, which furnished 146,730. At the last report of the Home, which shows a

total of 15,899 inmates, the number of foreign-born was 9,571; native-born, 6,328. There were among the 15,899 above-named members of the Home, 5,989 married or having living wives or minor children, or both, and 9,910 single men; 1,525 could neither read nor write, of whom 26 per cent. were native and 74 per cent. foreign-born, leaving 14,374 who could read and write.

The different branches of the National Home are not entirely dependent for subsistence upon Government appropriations, certain industries being prosecuted among them, which in some instances return considerable sums. Thus, in the Central branch, at Dayton, Ohio, the returns for manufactures by the inmates (being entirely clothing, shirts, and towels) was, at the last report, for the year, \$84,601.99, and the returns from the sale of farm products \$24,007.01. The Northwestern branch, at Milwaukee, showed a total receipt for manufactures of \$13,730.93, and for farm products, \$17,318.15. The Eastern branch, at Togus, Me., shows a sale of farm products of \$16,728.62. This institution turns in also a moderate sum from the manufacture of shoes. The Southern branch, at Hampton, Va., shows manufactures, \$4,799.55, and farm products, \$12,879.99. The average cost of supporting the soldiers in the National Home, according to the last report, was \$123.21 per man per annum. Besides old age and general debility, the most prevalent causes of sickness and death are rheumatism, paralysis, diseases of the lungs and air-passages, hernia, and either partial or total blindness, which seems quite prevalent. Heart disease carries away a good many. As a rule, the directors of the different branches of the Home insist upon temperance, and though there are some deaths from alcoholism, they are very few. The buildings are all commodious and convenient, and are surrounded by handsome grounds kept in the best possible order. Every branch has religious services conducted by both Protestant and Catholic chaplains. The following bill of fare for every day in the week at the Central branch, Dayton, Ohio, is an average showing of the way in which the veterans are fed.

Sunday.—Breakfast: fried ham or ham and eggs, potatoes, bread, butter, and coffee. Dinner: roast mutton or roast beef, potatoes, green peas or dried Lima beans, cucumber pickles or pickled beets or green onions, apple, berry, or peach pie, bread, butter, coffee. Supper: stewed dried fruit or apple-butter or strawberries, sugar cookies, bread, syrup, cheese, tea.

Monday.—Breakfast: beef fricassee, fried hominy, bread, butter, coffee. Dinner: vegetable or bean soup, beef or bacon, pickled onions or cucumber pickles or horse radish, potatoes, bread, crackers. Supper: mush or rolled oats or hominy, syrup, bread, biscuit, butter, tea.

Tuesday.—Breakfast: Irish stew, bread, and coffee. Dinner: pickled shoulders, potatoes, stewed beans or peas, bread, butter, coffee. Supper: Apple sauce or stewed prunes, or dried currants or cherries, ginger cake, bread, butter, tea.

Wednesday.—Breakfast: Boston baked beans with pork or beef stew, with fried hominy, bread, butter, coffee. Dinner: roast beef, stewed beans or spinach or new beets, potatoes, bread, coffee. Supper: cold corned beef or pigs' tongues or pickled tripe, pickled beets or cucumbers, or catsup, bread, butter, tea.

Thursday.—Breakfast: sugar-cured shoulders, potatoes, bread, butter, coffee. Dinner: roast beef, suetash or dried peas, new cucumbers in season, ap-

ple or blackberry pie, bread, butter, coffee. Supper: biscuit, bread, rolled oats or hominy, syrup, butter, tea.

Friday.—Breakfast: mackerel, potatoes, bread, butter, coffee. Dinner: stewed codfish with egg sauce, or fresh lake trout, fried, mashed, or boiled potatoes, bread, butter, coffee. Supper: stewed apples or currants or prunes, cinnamon cake, bread, cheese, tea.

Saturday.—Breakfast: corned-beef hash, bread, butter, coffee. Dinner: boiled pork loins or pickled shoulders, stewed beans, cabbage or sauerkraut, potatoes, tomato catsup, bread, butter, coffee. Supper: boiled rice or hominy, syrup, biscuit, butter, tea.

Changes are made in the general dining-hall once in three months. The hospital bill of fare is prescribed by the surgeon.

Printed forms for application for admission to the National Home for Disabled Volunteer Soldiers, or any of its branches, may be obtained from the secretary of the board of managers, or from the governor of any of the branches.

The first branch of the National Home that was ready to receive disabled soldiers was the Eastern branch, at Togus, near Augusta, Me., which was opened Nov. 10, 1866. Although the formation of most of the branches necessitated the purchase of land and building thereupon, that at Togus was founded on a summer resort which contained about 1,100 acres of land and good buildings. The property was in fine condition, having had expended upon it not less than \$200,000, and was purchased by the United States Government at an expense of \$50,000. In

are spacious, a large portion in farming-land, while there is also a great number of ornamental trees, shrubbery, cultivated lawns, clean and broad and good avenues, and fine flower-gardens. A reservoir, supplied from springs, with a running stream, a rustic bridge, and the residence of the chief official and minor buildings, give variety to the scene. A battery of guns is an appropriate adjunct. The main buildings have upright or French roofs and are ornamented with towers on which are flag-staffs. Piazzas traverse their sides. The interior of these buildings show lofty rooms, comprising administrative apartments, dormitories, post office, telegraph office, library and reading-room, smoking-room, etc. All the buildings are well supplied with heating apparatus, water, gas, improved ventilation, and bath-rooms, being heated by steam.

State Homes.—There are other homes in the different States, known as "State Homes for Disabled Soldiers and Sailors of the United States," existing under State enactment, but having a certain relation to the United States Government through the National Home and the War Department, which annually reports to Congress upon all the soldiers' homes.

New Jersey, Kearny.—The first of the State homes to be established was that of New Jersey, the act in regard to it having been approved March 23, 1865, appointing a commission with authority to purchase or lease a site and erect a soldiers' home. Pursuant to this a home was



BARRACKS, SOLDIERS' HOME, TOGUS, MAINE.

1867 there were 200 occupants, but in 1868 the principal building was burned. Early in 1889 the present Home was begun, comprising three large brick buildings, each nearly 100 feet long by 50 wide, the total cost of which was about \$150,000. A brief account of this branch will give a general idea of the appearance and arrangement of most of the others. The grounds

established on the west side of Passaic river, near Newark, and occupied for many years until the present home was completed, Oct. 4, 1888, at Kearny, Hudson County. This is of the pavilion type, and is on the elevated ridge forming the eastern bank of Passaic river. It occupies a tract of about 17 acres, and all the buildings except one are several hundred feet from the

river and 75 feet above high-water mark. There are nine buildings, those used for dormitories being but one story high. The other buildings are an old men's ward, a hospital, a large structure containing the kitchen and the dining-hall,

their children, and widows and children under the age of fifteen of soldiers who died in the service, are admitted. The number of members present at the last inspection was 39 and one woman.



ILLINOIS SOLDIERS' AND SAILORS' HOME, NEAR QUINCY.

a chapel, a laundry, an administrative building, and a barn. A smoking-room and recreation-room and large piazzas give ample space for rest or amusement of the inmates. The amount of appropriations made by the State up to March 6, 1888, was \$300,000. Number of members present at annual inspection, Jan. 2, 1889, 276.

California, Yountville.—This Home is 54 miles north of San Francisco, at Yountville, Napa County, 9 miles from Napa. The buildings are mostly of wood, with verandas, and include a large central barrack or dormitory, library, mess-hall, and quarters for the members. It is called the Veteran's Home. There are also two cottages, built at private expense, and two other buildings. The capacity of the buildings for quarters is 230. The Home possesses 912 acres of land, 200 of which are arable. A large crop of grapes is cultivated. At the date of the last inspection the number of members present was 211. This Home was organized by the Grand Army of the Republic and the veterans of the Mexican War, and incorporated March 10, 1882. The limit of maintenance is \$30,000, the sum of \$150 per annum being allowed for each veteran admitted.

Nebraska, Grand Island.—This Home consists of one large building, 100 × 50 feet, and comprises 640 acres of prairie land, two miles from the city of Grand Island. Its capacity is for 125 members. It was established by act approved March 4, 1887. Wives of soldiers with

Iowa, Marshalltown.—This Home occupies one building, on an estate of 128 acres, given by the citizens of Marshalltown, from which it is distant about a mile and a half. The building has four stories, with wings and a central tower. It has a capacity for 350 beds. The grounds are handsomely embellished, and include a pond 350 feet in circumference, with a large fountain in its center. At the last inspection there were 259 members. The average cost for each inmate is \$120 per annum.

Illinois, Quincy.—The Illinois Soldiers' and Sailors' Home is two miles from the city hall of Quincy, and comprises a park covering 142 acres of land, containing balconied buildings of brick and stone, including 17 cottages, an administrative building in the Norman style, turreted, 85 × 60, of limestone, a hospital, superintendent's residence, boiler house, laundry, kitchen, bakery, and storehouse. The capacity of the Home is 900 men, and at the last annual report 595 were present. The product of the farm at the last report amounted to \$6,000; expenses for the year, \$76,983.50. The annual appropriations for the Home (which was organized in 1885) for maintenance average about \$125,000.

Wisconsin, Waupaca.—The Wisconsin Veterans' Home is three miles east of the village of Waupaca, on the Wisconsin Central Railway, and 127 miles northwest of Milwaukee. It was incorporated March 10, 1887, the act appropriating \$3 a week for each inmate. There are 78

acres, 40 of which are wooded and 30 under cultivation. The buildings include 15 cottages, and others are being built. At the last annual inspection reported there were present 50 members, 16 wives, and 7 widows.

Minnesota, Minnehaha Falls.—The Minnesota Soldiers' Home had its origin through the Grand Army of the Republic, and a general act was passed in 1887 providing for the construction of the Home and for its maintenance, the appropriation amounting to \$100,000. The buildings include cottages, superintendent's residence, administrative building, etc., of stone and brick. The grounds have been beautifully laid out. The land includes 51 acres on a high plateau between the deep cañon of the Mississippi and the precipitous gorge of the Minnehaha valley, below the falls. Members present at last report, 68.

Michigan, Grand Rapids.—The Michigan Soldiers' Home is one of the largest and most elaborate examples of the single-building style. Its dimensions are 250 feet front, 98 feet deep, with two wings, each 120 feet deep, there being three stories of brick above the basement of stone, and the front and ends surrounded by verandas; a tower surmounts the central portion. The building stands on the Home farm of 132 acres, near the banks of Grand river, three miles from Grand Rapids. It has a capacity for 400 members. The Home farm was given to the State by the citizens of Grand Rapids. The act creating the Home was passed in 1885. At the last reported inspection the number of persons present was 395.

Ohio, Sandusky.—The Home for Disabled Soldiers of Ohio is reached by a drive over a new avenue 100 feet wide, running three miles southward from Sandusky. It comprises 18 buildings, arranged about an ellipse, the major axis of which lies east and west, and is 800 feet long, and the minor axis about 400 feet. The buildings are of stone and brick, with brown and white sandstone trimmings. The present capacity is about 700 members. This Home was created by act dated April 30, 1886. The number of members present at the last report was 477. The area owned by the Home is 90 acres, given by the subscriptions of Sandusky and Erie counties.

Pennsylvania, Erie.—The Pennsylvania Home is on the bluffs 55 feet above Lake Erie, one mile from the city of Erie. The main building, covering an area of 370 × 370 feet, is the largest single-building Home in the United States. It has three stories above its basement, contains 163 rooms, and has a capacity for 600 members. The land covers 107 acres, 6 of which are cultivated, 30 devoted to pasture, and 60 on the bluffs. A mess-hall, 44 × 100 feet, with seats for 500, a library of nearly 600 volumes, a reading-room, and a chapel, are important features. The building is of brick, with stone trimmings, having brick partition-walls, with fire-escapes. At the last inspection reported, 247 members were present. This Home originated in an act approved June 3, 1885, making appropriations therefor; and it was opened for inmates Feb. 22, 1886.

New York, Bath.—The New York State Soldiers' and Sailors' Home is the largest and one of the oldest in the country. It is, in fact, a village of 30 attractive buildings, gracefully disposed along two sides of a park, within two miles of the valley of the Cohocton, which flows through

its grounds. The land comprising the Home consists of 360 acres of valley and upland, with 100 acres of woodland. There are nine separate buildings for dormitories, having a capacity for 1,200 men. These are of stone and ornamental brick, with extensive verandas, the central building being surmounted with towers, and the entire combination of structures showing Gothic gables, with barbican turrets on the principal angles. This Home was incorporated in 1863, but no appropriations were made, and nothing further was done toward it until 1872, in which year, and again in 1876, other acts were passed, out of which in the latter year the Soldiers' Home at Bath eventually came into existence. The first movement was founded on gifts by the town of Bath, Steuben County, with subscriptions taken under the auspices of the Grand Army of the Republic, under which construction began in 1877. In the following year an act was passed transferring the Home to the State and appropriating money for the cost of land and buildings and for maintenance. The appropriations of the State from 1879 to 1889 amount to \$1,130,861. The average number of members was 873. From the farm there is an income of about \$10,000. The number of members present at the last annual inspection was 1,043.

Connecticut, Noroton.—Fitch's Home for Soldiers, as it is called, had its origin in the philanthropic efforts of Benjamin Fitch, a citizen of Connecticut, who established it by charter in 1863, the charter being amended and acts passed in 1882, 1884, and 1886, under which the Home finally came under the control of the State. The Home is on a tract of 14 acres near Noroton station, on the New York, New Haven, and Hartford Railroad, 35 miles east of New York city. It comprises 6 buildings, the main building being 170 × 40 feet in dimensions. At the last report, Jan. 3, 1889, 169 members were present.

Vermont, Bennington.—This Soldiers' Home is of the summer hotel type, and was originally the property of the incorporators of the Trenor W. Park Home for Diseased Women and Children. This property was given Feb. 5, 1887, to the trustees of the Soldiers' Home. It is half a mile north of Bennington, and comprises 170 acres of woodland and 10 under cultivation, the remainder of the 200 acres being in lawn and grass. There are 5 buildings, of wood with slate roofs. On Jan. 4, 1889, there were 41 members; in September, 55.

Massachusetts, Chelsea.—This Home is also of the summer hotel type, being a single building 220 × 60 feet, on a tract of 4 acres, 200 feet above the sea, and 4 miles north of the State House in Boston. It is a large building of three stories, with spacious verandas and porches. The library consists of 2,500 volumes with files of 93 newspapers. On Jan. 7, 1889, there were 147 members. The Massachusetts Home was incorporated May 11, 1877, but no appropriations were made until 1883, since which time it has cost the State \$105,000.

Dakota, Hot Springs.—During the past year legislative action was taken with a view to establishing a soldiers' home at Hot Springs, Fall River county, Dakota.

The annual inspection of the State homes for disabled soldiers and sailors of the United

States is made by the assistant inspector-general of the National Home, a report of which is made to the speaker of the House of Representatives. The latest of these reports, published by Gen. William W. Averill, U. S. A., includes, besides a mass of valuable information concerning the homes, a list of all members, their names, company and regiment, rank, length of service, nationality, occupation, etc., present at the last inspection in each of the State homes. It also includes plans and elevations of the buildings comprised in many of the homes, and the by-laws, rules and regulations, and act of incorporation of each of them.

Homes for Ex-Confederate Soldiers.—After the civil war the impoverished condition of the South naturally prevented the appropriation of money or the taking of efficient steps toward the amelioration of the condition of its veteran soldiers; but, as the South began to recuperate, the sentiment in this direction began to crystallize in some degree, and efforts were made toward the foundation of soldiers' homes. There are four of these now in the Southern States: R. E. Lee Camp, No. 1, C. V., at Richmond, Va.; one in New Orleans containing 30 inmates, supported by a State appropriation of \$50,000 a year; one in Austin, Texas, supported by private contributions; and one at Pikesville, Md. Individual States have made appropriations for pensions to their disabled soldiers. The only ex-Confederate home of which any particulars have been obtained is that first mentioned, the Lee Camp Soldiers' Home, at Richmond. Lee Camp was organized April 18, 1883, by 38 veteran Confederate soldiers, who, after perfecting their organization, appointed a committee to petition the Legislature of Virginia for a charter, in the preamble of which, after stating the purposes of the organization, they said:

It is proposed not to prolong the animosities engendered by the war, but to extend to our adversaries on all fitting occasions the courtesies which are always proper between soldiers, and which in this case a common citizenship demands at our hands. We propose to avoid anything which partakes of partisanship in religion and politics; but at the same time we will render our aid to the maintenance of law and the preservation of order.

Mainly by the efforts of the ladies of Richmond this Camp collected, by means of a bazaar, \$23,000 for the purpose they had in view, which was approved by Phil. Kearny Post, G. A. R., and \$8,000 for the same purpose was raised in the North and West, while the late Hon. William W. Corcoran sent to Lee Camp his check for \$5,000. Altogether \$52,000 was collected, and the Soldiers' Home was founded, which undoubtedly became the model for the other Confederate homes mentioned above. The Richmond Home comprises attractive cottages two miles from the city, on Grove road, in the western suburbs. This Home generally contains 125 inmates, with many applicants for vacancies.

SOUTH CAROLINA, a Southern State, one of the original thirteen; ratified the Constitution May 23, 1788; area, 30,570 square miles; population, according to the last decennial census (1880), 995,577; capital, Columbia.

Government.—The following were the State officers during the year: Governor, John P. Rich-

ardson, Democrat; Lieutenant-Governor, William L. Mauldin; Secretary of State, J. F. Marshall; Treasurer, Isaac S. Bamberg, who died in June and was succeeded by E. R. McIver; Comptroller-General, J. S. Verner; Attorney-General, Joseph H. Earle; Superintendent of Education, James H. Rice; Commissioner of Agriculture, A. P. Butler; Railroad Commissioners, Milledge L. Bonham, D'Arcy P. Duncan, Eugene P. Jervcy; Chief Justice of the Supreme Court, W. D. Simpson; Associate Justices, Henry McIver and Samuel McGowan.

Finances.—The following is a statement of the State debt remaining unpaid on Oct. 31. Bonds and stocks fundable by law at 50 per cent. of the face value, principal \$441,629.22, fundable value \$220,814.61; blue bonds and stocks and deficiency bonds and stocks, \$401,882.45; brown consol bonds and stocks, \$5,973,226.96; total debt, \$6,595,924.02.

The receipts for the year ending Oct. 31, including \$77,120.63 on hand at the beginning of the year, were \$1,236,816.60; the expenditures were \$1,176,673.78, and there remained on Oct. 31 a balance of \$60,142.82. The receipts from the State tax levy were \$689,399.23; from the phosphate royalty, \$212,101.96; from the Agricultural Department for fertilizer, fees, etc., \$45,542.49; and from the United States, for rent and damages to the citadel, 77,250. Among the expenditures were \$65,137.17 for the judicial department, \$44,500 for the State University, \$75,983.26 for the citadel academy, \$6,266.66 for the State Penitentiary, \$104,360.74 for the Lunatic Asylum; \$14,885 for the Deaf, Dumb, and Blind Asylum, \$51,001.75 for completion of State House, \$48,127.80 for pensions; \$31,169.95 for Agricultural Department, \$365,910.04 for interest due.

The assessed valuation of property liable to taxation in 1889 was as follows: Real, \$84,544,621; personal, \$43,632,022; railroad property, \$17,243,373; total, \$145,420,016. The State tax thereon was 5½ mills. For 1888 the total valuation was \$141,986,154.

Education.—For the school year ending Aug. 31, the statistics were as follow: School districts, 605; public schools, 3,948; white pupils enrolled, 89,761; colored pupils enrolled, 104,503; average attendance—white pupils 59,357, colored pupils 69,892, pupils not classified 7,109, total 136,358; teachers employed—white 2,528, colored 1,622; average monthly salary—male teachers, \$26.61; female teachers \$23.50; number of school-houses, 2,962; total expenditures, \$460,434.24; of which \$396,332.86 were paid for teachers' salaries, and \$19,291.19 for new buildings. In comparison with the previous year there was a slight decrease in the number of white pupils enrolled and a slight increase in the number of colored pupils.

At the State University the total attendance for the school year 1888-'89 was 235. At the Claffin Agricultural College 947 pupils were enrolled, of whom 21 were in the collegiate department. The total cost of maintaining these two institutions for the year was \$65,543.96.

The attendance at the South Carolina Military Academy for the year 1889 reached the unusual number of 153 pupils, of whom 68 were State beneficiaries.

Charities.—The number of patients at the State Lunatic Asylum increased during the fiscal year ending in November from 680 to 722, the largest number at one time being 732. There has been a remarkable increase in the number of colored insane patients in recent years. In November, 1878, there were 101 colored patients in the asylum and in November, 1889, 313, while for the white population the increase was slightly over 75 per cent.

Penitentiary.—On Oct. 31 there were in confinement at the State Penitentiary 884 prisoners—59 white and 825 colored. Of this number 150 were employed in shoe and hosiery contracts inside the prison, 265 were at work on the Columbia Canal, and there was a daily average of 285 employed on the agricultural contracts. The year began with an indebtedness of \$14,162.49, and the disbursements amounted to \$73,298.32. The earnings amounted to \$88,565.33 in cash, leaving a balance of \$1,104.52.

Phosphate.—During the year ending Aug. 31, 212,101 tons of phosphate rock were removed from the navigable streams of the State, against 190,224 tons in the year preceding. The royalty paid into the treasury was \$212,101.96, against \$186,993.87 in 1888.

Railroads.—There are thirty-four railroads in the State, having a total mileage on June 30 of 2,084 miles, against 1,914 miles on June 30, 1888. The increase is greater than in any previous year. There was an increase over 1888 of \$407,657.45 in total income, and \$821,327.32 in expenses. The railroads paid during the year in taxes \$221,793 to South Carolina, \$88,111 to Georgia, and \$17,981 to North Carolina.

Confederate Pensions.—Under the pension act of 1888, \$50,000 was appropriated annually for pensions to Confederate soldiers and their widows, and provision was made that pension claims should be passed upon by a county board and a State board of pensions. During the year these boards passed upon 2,276 claims, of which 1,949 were approved—515 being soldiers' claims, and 1,434 widows'. The amount paid out in pensions was \$45,613.80, and for examining board expenses, etc., \$3,986.40. The average amount for each pensioner was slightly over \$23.

Decision.—The constitutionality of the act of December, 1888, validating the township bonds issued in aid of railroads, which the State Supreme Court had declared unconstitutional, was before the same court this year, and a decision was rendered in favor of validity.

Legislative Session.—The regular annual session of the Legislature began on Nov. 26, and was adjourned on Dec. 24. The most important act of legislation was a repeal of the law protecting the civil rights of the colored race, which prohibited common carriers, inn and restaurant keepers, and managers of theatres or other places of amusement from discriminating against persons of color in the accommodations or otherwise. This law had been on the statute books more than twenty years. An act relating to State convicts forbids their employment in phosphate mining, and provides that a farm or farms shall be purchased out of the surplus earnings of the State Penitentiary, on which such convicts shall be worked. Provision was made for refunding at par that part of the State

debt known as the "brown consol bonds and stocks," which bear interest at 6 per cent., and become due in July, 1893. The refunded debt shall bear 4 per cent. interest, instead of 6 per cent., and shall not become payable till 1940. Persons wishing to exchange their bonds and stocks for the new issue, may present them to the State Treasurer at any time before July, 1893, and in addition to the new bonds or stocks, shall receive in cash the difference of 2 per cent. in interest from the date of surrender to July, 1893. After June, 1892, the treasurer may advertise and sell such of the new bonds and stocks as have not been issued in exchange for old ones, as above provided, and from the proceeds shall in July, 1893, redeem the old bonds and stocks then due. For the payment of interest on the new issue, the State binds itself to levy annually a tax of three mills, or so much thereof as is necessary for the purpose. The Legislature of 1888 late in the session passed a bill accepting a devise under the will of Thomas G. Clemson of 814 acres in Oconee County, and of certain other property, on condition that the State should erect and maintain an agricultural and mechanical college; but the Governor did not sign and return the bill till the opening of the present session. An act was thereupon passed to provide for building and maintaining the proposed college. Half of the land script fund heretofore vested in the State University was given to the new college as a permanent fund; the annual grant of \$15,000 from the United States for maintaining an agricultural experiment station was taken from the State University and given to the new college; for building and maintenance, \$40,000 was appropriated—\$15,000 from the general funds, \$10,000 from the fertilizer tax of 1889, and \$15,000 from the same tax in 1890. The trustees of the new college were authorized to use fifty State convicts on the new buildings, paying only for their transportation and maintenance. An amendment to Article IV of the Constitution to abolish the office of county commissioners was proposed, and its submission to the people in 1890 was provided for. The State tax for the year beginning in November was fixed at 5½ mills. Other acts of the session were as follow:

Reducing the maximum rate of interest that may be legally agreed upon and collected from 10 to 8 per cent.

To authorize incorporated towns of 300 inhabitants or more to substitute hard labor in their streets for fine and imprisonment in cases of misdemeanor.

To prevent the killing and destruction of fish in the fresh waters of this State by the use of dynamite, giant powder, or other explosive material.

Providing a mode of ascertaining the names of registered voters convicted of disqualifying crimes, and requiring their names to be erased from the registration books.

To prohibit the sale, furnishing, giving, or providing to minors under eighteen years, of cigarettes, tobacco or cigarette paper, or any substitute therefor.

Changing the names and location of voting precincts in the State.

Requiring the polls at all voting places to be kept open from seven o'clock in the forenoon till four o'clock in the afternoon. [The hour for closing had previously been six o'clock.]

Changing the time for meeting of presidential elections from the first Wednesday in December to the second Monday in January next after their election.

SOUTH DAKOTA, a Western State, admitted to the Union on Nov. 3, 1889; area, 76,620 square miles; population (estimated), 379,000; capital, Pierre.

Government.—The following were the State officers from the date of admission: Governor, Arthur C. Mellette, Republican; Lieutenant-Governor, J. H. Fletcher; Secretary of State, A. O. Ringsrud; Treasurer, W. F. Smith; Auditor, L. C. Taylor; Attorney-General, Robert Dollard; Superintendent of Public Instruction, G. L. Pinkham; Commissioner of School and Public Lands, O. H. Parker; Justices of the Supreme Court, Dighton Corson, A. G. Kellam, and John E. Bennett.

The Admission Act.—The provisions of this act, which received the signature of President Cleveland on Feb. 22, 1889, so far as they relate to South Dakota, are as follow: An election shall be held on May 14 to choose delegates to a constitutional convention, which shall meet at Sioux Falls on July 4. The people, on May 14, shall also vote for or against the Sioux Falls Constitution adopted in September, 1885, and, if a majority shall be in favor of the Constitution, its provisions shall be incorporated in the new Constitution, which shall be perfected by the Sioux Falls Convention in July, and which shall be submitted to a vote of the people on Oct. 1. If this new Constitution is accepted, South Dakota shall become a State by proclamation of the President. On admission the State shall be entitled to two members in the House of Representatives. The State shall receive the sixteenth and thirty-sixth sections in every township, or sections in lieu thereof, the proceeds from the sale or lease of which shall form a permanent public-school fund. This fund shall also receive 5 per cent. of the net proceeds derived by the Federal Government from sales of unappropriated public lands within the State. Seventy-two sections of the public lands are confirmed to the State for university purposes. Fifty sections are granted for public buildings at the capital, 120,000 acres for agricultural colleges, 40,000 acres each for the School of Mines, Reform School, Deaf and Dumb Asylum, Agricultural College, and State University; 80,000 acres for normal schools; 50,000 acres additional for public buildings at the capital, and 170,000 acres for general educational and charitable purposes. All lands and buildings thereon already set apart for the uses of the Penitentiary at Sioux Falls are given to the State.

Constitutional Convention.—In accordance with the Admission act, Territorial Governor Mellette, on April 15, issued his proclamation, calling a special election to be held in the South Dakota counties on May 14, for the purpose of choosing delegates to a constitutional convention, and also to vote on the question whether the Constitution framed by the Sioux Falls Convention in September, 1885, should be adopted as the basis for the Constitution of the proposed State of South Dakota. This election resulted in the choice of 75 delegates, as provided in the Admission act, a large majority of whom were Republicans. On the question of adopting the Sioux Falls Constitution, 41,123 votes were cast, of which 37,710 were in favor of the Constitution and 3,413 against it. The delegates met at Sioux

Falls on July 4, and organized by choosing Judge A. J. Edgerton as president. As the people had voted to adopt the Sioux Falls Constitution of 1885, the only duties of this convention, as provided in the Admission act, were to make such changes only in that Constitution as related to the name and boundary of the proposed State, and to the reapportionment of legislative and judicial districts, and such amendments as might be necessary to comply with the provisions of the Admission act, and then to provide for the submission of the Constitution thus amended to a vote of the people on Oct. 1. The convention appointed a committee to confer with a similar committee from the North Dakota Constitutional Convention, and to agree upon a division of the debts and property of the Territory of Dakota. The report of this committee was incorporated in the Constitution, such other minor changes as became necessary were made, and the whole was adopted as the proposed Constitution of South Dakota. The convention adjourned on Aug. 5. (For the leading provisions of the Sioux Falls Constitution of 1885, as incorporated in this Constitution, see the "Annual Cyclopædia" for 1885, page 283.) The report of the joint committee to divide the debts and property of Dakota Territory provides that all the public buildings and institutions of the Territory, in South Dakota, shall become the property of the State of South Dakota, which shall become responsible for all debts, bonded or otherwise, outstanding for their construction, repair, or maintenance. The State of South Dakota shall pay to the State of North Dakota \$46,500, on account of excess of Territorial appropriations for permanent improvement of public institutions in South Dakota, for one half interest in the Territorial Library, etc. Such liabilities of the Territory as are not above provided for shall be shared equally by the two States, except that a detailed agreement is made for adjusting the Territorial expenses and receipts of the current year. Provision was made for the election of a full set of State officers on Oct. 1, the date of the election upon the Constitution, and for submitting independently the articles of the proposed Constitution relating to prohibition and to minority representation, as well as the question of temporary location of the State capital.

Election.—The canvass for State officers began immediately after the dissolution of the Constitutional Convention. A Republican State Convention was called to meet at Huron on Aug. 28, at which time the following ticket was placed in nomination: For Governor, Arthur C. Mellette; Lieutenant-Governor, J. H. Fletcher; Secretary of State, A. O. Ringsrud; Treasurer, W. F. Smith; Auditor, L. C. Taylor; Attorney-General, Robert Dollard; Superintendent of Public Instruction, G. L. Pinkham; Commissioner of School and Public Lands, O. H. Parker; Justices of the Supreme Court, Dighton Corson, A. G. Kellam, and John E. Bennett; Members of Congress, O. S. Gifford and J. A. Piekler. The platform makes the following declarations upon local questions:

We most heartily welcome to our fellowship the people who have come to us from foreign lands to find a home in this the country of their adoption, intending to render due respect to its laws. We favor the

enactment of such laws as will protect the citizen in the free exercise of his right of suffrage, and will insure fair and honest elections and equal and just taxation of property. Recognizing the pernicious influences of the traffic of intoxicating liquors upon every interest of our commonwealth, we favor national and State prohibition of such traffic and the adoption of the article of our Constitution relating thereto and the enactment and enforcement of such laws as will make the same effective. The great agricultural interests of Dakota demand that they should be protected, fostered, and guarded with jealous care, and such laws enacted as will insure equitable rates of transportation, allowing no unjust discrimination against sections or individuals; that we favor the improvement of the great waterways of the Northwest so as to bring close competition in the carrying trades. We favor a warehouse law which will give every farmer a free market for his produce and which will not leave him at the mercy of any elevator or railroad combination. We advise and urge prompt and liberal action on the part of the State and nation toward the establishment of a comprehensive system of irrigation. For such portions of our State as would be benefited thereby, we favor the establishment of a bureau of labor and statistics. We also favor prohibition of the employment of children under sixteen years of age in mines, shops, and factories. We favor the election of railroad commissioners and giving them ample authority for protection of the people against exorbitant rates and unjust discrimination. We view with alarm the dangerous encroachment of the numerous trusts forming all over our land, and demand the enactment of stringent laws declaring the formation of all trusts and combinations for the purpose of controlling or enhancing the price of any of the necessities of life unlawful.

On Sept. 5 the Democrats met in State convention at Huron and nominated the following ticket: For Governor, P. F. McClure; Lieutenant-Governor, A. W. Pratt; Secretary of State, Otto Peemiller; Auditor, J. E. Horton; Treasurer, A. D. Hill; Attorney-General, R. F. Fellows; Superintendent of Public Instruction, G. H. McFarland; Commissioner of School and Public Lands, H. S. Volkman; Justices of the Supreme Court, H. McLaughlin, C. H. Winsor, S. B. Van Buskirk; Members of Congress, L. Q. Jeffries and S. M. Booth. The resolutions adopted include the following:

We are opposed to constitutional prohibition, now demanded by the Republican party of South Dakota, and favor in its stead a well-regulated license law, which is accepted by the Democracy of the country as the best method of controlling the traffic in intoxicating liquors and lessening the evils of intemperance. We declare in favor of minority representation and urge the fair-minded tax payers to support the article of our Constitution relating thereto as a partial protection against the evils of vicious legislation. We arraign the Republican party of South Dakota for extravagance and mismanagement in conducting the affairs of the Territorial government.

There was no Prohibition ticket in the field. At the election on Oct. 1 all the Republican candidates received large majorities. For Governor the vote was: Mellette, 53,964; McClure, 23,840. For Lieutenant-Governor—Fletcher, 54,711; Pratt, 22,946; For Members of Congress—Gifford, 54,988; Pickler, 54,105; Jeffries, 23,229; Booth, 22,535. Members of the State Legislature were elected as follow: Senate—Republicans 37, Democrats 4, Independents 4; House—Republicans 104, Democrats 13, Independents 7. On the question of adopting the Constitution, as perfected by the Sioux Falls Convention in July,

the vote was: Yeas, 70,131; nays, 3,267. On the two constitutional propositions submitted independently to the popular vote, the article prohibiting the manufacture and sale of intoxicating liquor was adopted by a vote of 40,234 yeas to 34,510 nays, and the article providing for minority representation was rejected by a vote of 24,661 yeas to 46,200 nays. For temporary location of the State capital, the city of Pierre had 29,256 votes; Huron, 15,647; Watertown, 12,012; Sioux Falls, 11,888; Mitchell, 7,793; Chamberlain, 2,421. Pierre was therefore selected. A similar vote taken in 1885 resulted in the selection of Huron by the following vote: Huron, 12,695; Pierre, 10,574; Chamberlain, 3,232; Sioux Falls, 3,338; Alexandria, 1,374. The result of this election was officially communicated to President Harrison, and on Nov. 3 he issued his proclamation admitting South Dakota to the Union.

Legislative Session.—On assuming his office, Gov. Mellette issued his proclamation, convening the first State Legislature at Pierre on Oct. 15. Its first duty was to elect two United States Senators to represent the new State. In the Republican caucus, Richard F. Pettigrew and Gideon C. Moody were chosen. The Democratic caucus nominated Bartlett Tripp and M. H. Day. In the Legislature on Oct. 17 the Republican candidates were elected by the following votes: Senate—Pettigrew 41, Tripp 4; House—Pettigrew 108, Tripp 14; Senate—Moody 41, Day 4; House—Moody 107, Day 14. The Legislature then adjourned, to meet on Jan. 7, 1890.

Finances.—The financial condition of the new State is set forth by the Governor in his first message in January, 1890, as follows:

At the date of admission the bonded debt assumed by South Dakota was \$710,200, of which amount \$116,600 bears interest at 6 per cent. per annum, \$125,000 at the rate of 5 per cent., \$317,100 at 4½ per cent., and the remainder, \$152,500, at the rate of 4 per cent. [All these bonds were issued for building public institutions within the limits of the State.] There was also outstanding Nov. 4, an indebtedness of the Territory to the amount of \$150,000 evidenced by three funding warrants, of which South Dakota owes \$75,000. By the terms of the agreement made by the joint commission of the Constitutional Convention, South Dakota must also pay North Dakota \$46,500 on account of the difference in adjustment of accounts up to March 8, 1889; since that date South Dakota has overdrawn its account, so that it is probable that South Dakota will have to pay, on final settlement of these three items, \$150,000, making the total indebtedness at the date of admission \$860,200. The balance belonging to South Dakota, received by the State Treasurer from the retiring Territorial Treasurer was \$84,441.93, of which \$38,407.70 was in bond funds and not available for the general purposes of the Government, and \$46,034.23 in general fund, bond-interest fund, and stock-indemnity fund.

The Territorial Auditor has estimated the total receipts for the current fiscal year to be \$335,326.68, and the necessary expenditures to be \$508,232.50, leaving a deficiency for the year of \$172,905.82. By the State Constitution, which we have adopted, the total tax levy for ordinary purposes is limited to two mills.

The indebtedness that the State may create is very limited, under the Constitution. The Legislature may provide for the issue of bonds to cover the Territorial indebtedness assumed by the State, and may further increase this indebted-

edness to \$100,000, and here the power of the Legislature to create indebtedness ceases.

The total assessed valuation of the counties of South Dakota for purposes of taxation in 1889 was \$97,342,440.60. There were assessed 12,610,049.9 acres of land, valued at \$51,475,558.50; 191,557 horses, valued at \$7,631,228; 7,489 mules, valued at \$319,611; 448,234 cattle, valued at \$4,734,618.50; 134,823 sheep, valued at \$164,175.50; and 209,194 swine, valued at \$484,117.60.

Agriculture.—The following are the official figures showing the acreage and yield of farm products in South Dakota for 1889: Wheat, 2,013,726 acres, 17,287,332 bushels; oats, 671,829 acres, 11,623,615 bushels; corn, 784,655 acres, 21,821,898 bushels; barley 127,338 acres, 1,694,875 bushels; rye, 16,587 acres, 255,620 bushels; buckwheat, 2,828 acres, 29,667 bushels; potatoes, 29,537 acres, 2,637,132 bushels; flax, 345,803 acres, 2,754,376 bushels.

Indian Reservations.—Early in August, a commission appointed by Congress to treat with the Sioux Indians obtained their agreement to the cession of a large portion of their lands, which will open to settlement about 11,000,000 acres of fine farming land embraced between American and Medicine creeks on the east and Cheyenne and White rivers on the west side of Missouri river, together with all that portion of the Great Sioux Reservation lying south of the forty-sixth parallel and west of the one hundred and third meridian. Late in December a similar commission to treat with the Sisseton Indians obtained the assent of the tribe to a cession of about 1,000,000 acres north of the city of Watertown.

SPAIN, a constitutional monarchy in southern Europe. The present King is Alfonso XIII, infant son of Alfonso XII, and the Archduchess Maria Christine of Austria, born May 17, 1886. During his minority his mother reigns as Queen-Regent. The legislative power is exercised by the Congress, consisting of a Senate having the maximum number of 180 members, comprising princes of the blood royal, *grandees* of Spain, certain functionaries, and 123 nominated Senators, and a Chamber of 432 Deputies elected for five years in the proportion of one to every 50,000 inhabitants, by electoral colleges. The last general election was held in 1886. The ministry constituted on June 14, 1888, is as follows: President of the Council, P. Mateo Sagasta; Minister of Foreign Affairs, Marquis de Vega de Armijo; Minister of Grace and Justice, J. Canalejas; Minister of Marine, Admiral Rodriguez Arias; Minister of Finance, Venancio Gonzalez; Minister of War, Gen. J. Chinchilla; Minister of the Interior, T. Ruiz Capdepón; Minister of the Colonies, M. Becerra.

Area and Population.—The area of Spain is 504,551 square kilometres. The population at the end of 1887 was 17,550,246, compared with 16,634,345 in 1877. The population of the principal cities in 1887 was as follows: Madrid, 472,228; Barcelona, 272,481; Valencia, 170,763; Sevilla, 143,182; Malaga, 134,016.

Finances.—The revenues of the Government have declined under the present system of tariff and taxation, and the Minister of Finance has not been able to develop new resources. There has always been a deficit, and in years when the

budget has been made apparently to balance, it has only been done by extraordinary remedies, such as the issue of new loans, the increase of the floating debt; the postponement of important obligations; or the sale of Government possessions. In 1889 all the extraordinary resources had been exhausted, and the foreign money markets were not open for a new Spanish loan. In 1888-'89 the minister expected to raise a revenue of 851,667,932 pesetas with the aid of new taxes, but the financial expedients were a failure, and only 710,603,325 pesetas were collected. The disbursements, estimated at 849,323,985 pesetas, were reduced to 813,258,722 pesetas, and still the estimated surplus of 2,343,947 pesetas was converted into a deficit of 102,655,397 pesetas. For 1890-'91 a revenue is expected of 803,349,277 pesetas, nearly balanced by 803,332,591 pesetas of expenditures. The floating debt on Aug. 1, 1889, amounted to 197,879,000 pesetas. The paper currency in circulation was 723,000,000 pesetas, in amount.

The Army.—The strength of the standing army is fixed for the financial year 1889-'90 as follows: Spain, 92,082 men; Cuba, 19,571; Porto Rico, 3,153; Philippine Islands, 9,214. A new territorial division was made in 1889. The country is divided into 68 districts, each of which is expected to raise, in case of war, an entire reserve regiment of infantry of three battalions. In case of mobilization two of the battalions, consisting solely of trained reservists, will be placed under arms immediately. The third battalion can also be called out, but can not at once take the field, since it consists of numerous untrained men in addition to the remaining trained reservists. The number of depot battalions is reduced from 140 to 68. The Spanish infantry on mobilization will consist of 60 regiments of the line; 68 reserve regiments of 2 battalions each; 68 additional reserve battalions, and 68 depot battalions.

The Navy.—The war navy in 1889 comprised 23 vessels in commission, viz.: 2 armored frigates, 9 cruisers, 4 avisos, 6 gunboats, and 1 torpedo-catcher. There were 1 armored frigate, 8 gunboats, 8 torpedo-boats, and 49 other vessels in reserve, besides 6 other torpedo-boats and 29 miscellaneous vessels. An armor-clad frigate was not yet fitted with its armament, and 2 deck-protected cruisers, 3 cruisers of the first class, and 6 of the second class were in various stages of construction. The Queen-Regent signed a decree in October, 1887, authorizing the construction of 6 battle-ships of 7,000 tons each, and 24 torpedo-boats. The fleet was manned in 1889 by 672 officers and 14,000 sailors, besides the marine infantry, consisting of 376 officers and 7,033 men, the arsenal guards, engineers, mechanics, etc.

Commerce.—The total value of the imports in 1887 was 811,211,708 pesetas, and of the exports 722,181,792 pesetas. The values of the chief imports in pesetas were as follow: Cereals and flour, 88,088,861; cotton and cotton goods, 76,353,729; spirits, 45,028,994; timber, 35,300,318; tobacco, 30,286,940; fish, 29,811,117; sugar, 29,743,228; coal and coke, 25,571,514; wool and woolen goods, 24,938,269; machinery, 20,136,968; hides, etc., 19,389,742; flax and hemp, 17,736,378; cattle, 17,137,709; iron, and manufact-

ures thereof, 16,930,935; chemicals, 15,812,920; silk goods, 14,880,332; cocoa, 13,627,361; other articles, 290,436,393; total, 811,211,708.

The following are the values in pesetas, of the largest exports in 1887: Wine, 281,810,384; minerals, 86,634,163; fruits, 63,638,275; metals, 41,496,284; cork, 16,768,651; wool, 14,122,934; cattle, 12,487,777; oil, 9,698,414; other articles, 195,464,910; total, 722,181,792.

The imports from France were 234,746,813 pesetas; exports to France, 303,918,732 pesetas; imports from England, 114,023,732 pesetas; exports to England, 184,663,303 pesetas; imports from North and South America, 179,494,343 pesetas; exports to America, 136,293,847 pesetas; imports from Germany, 82,902,424 pesetas; exports to Germany, 9,596,200 pesetas; imports from Belgium, 24,385,745 pesetas; exports to Belgium, 12,264,490 pesetas; imports from Russia, 40,726,717 pesetas; exports to Russia, 662,742 pesetas; imports from Italy, 16,591,363 pesetas; exports to Italy, 12,265,415 pesetas; imports from Sweden and Norway, 31,855,767 pesetas; exports to Sweden and Norway, 1,478,212 pesetas; imports from Portugal, 6,746,886 pesetas; exports to Portugal, 2,177,190 pesetas; imports from Turkey, 8,422,045 pesetas; exports to Turkey, 150,459 pesetas; imports from Asia and Australasia, 38,042,149 pesetas; exports to Asia and Australasia, 4,624,553 pesetas; imports from Africa, 21,544,758 pesetas; exports to Africa, 9,428,963 pesetas; imports from Spanish colonies, 16,631,039 pesetas; exports to Spanish colonies, 80,102,065 pesetas.

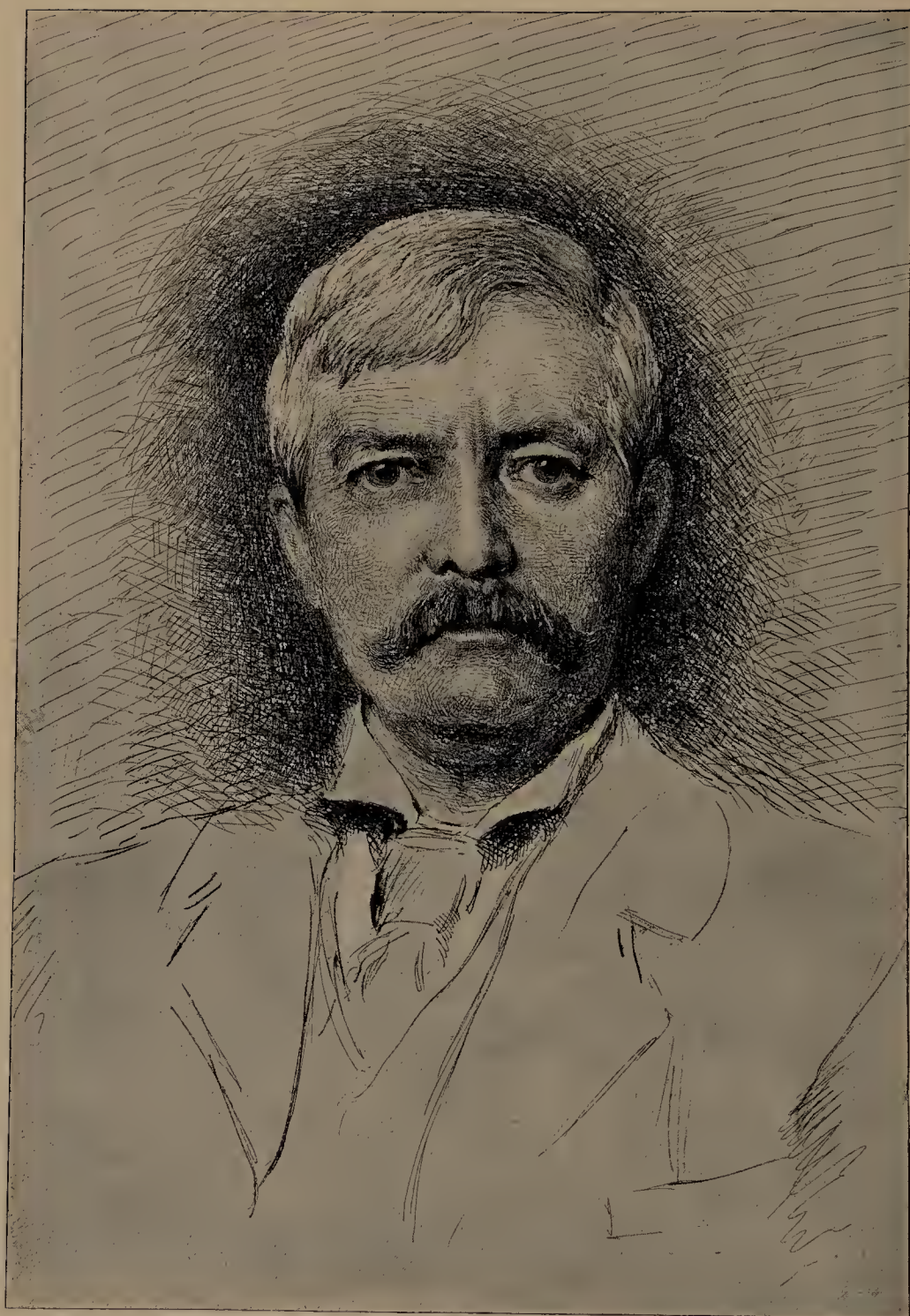
The exports of Spanish wines in 1887 were in quantity 182,217,756 gallons, of which 146,000,000 gallons went to France, and only 5,450,000 gallons to Great Britain. Owing to the mixture of Italian with Spanish wines, the French custom-house officials raised difficulties in 1888 and 1889 in regard to the importation of wines from Spain, as differential duties are charged on Italian goods. The export of iron ore in 1887 was 46,941,414 pesetas in value; of copper ore, 30,672,040 pesetas.

Railroads and Mails.—There were 9,470 kilometres of railroads in operation on Jan. 1, 1888, and 2,000 kilometres were in course of construction or projected. The railroads have been built by private companies, with the aid of subventions or guarantees from the Government.

The number of domestic letters carried in the mails in 1887 was 90,627,452; of postal-cards, 342,103; of circulars and samples, 10,580,254; of registered letters, 1,258,424. In the international service the number of letters was 11,990,397; of postal-cards, 39,468; of circulars and samples, 7,935,130; of registered letters, 765,512. The postal expenses were 14,420,994 pesetas.

The Philippine Islands.—The budget of the Philippine Islands for 1888 shows a revenue of 9,837,896 pesos and 9,958,104 pesos of expenditures. The value of the imports in 1887 was 17,530,296 pesos; of the exports, 25,254,140 pesos. The export of Manila hemp amounted to \$5,460,454; of sugar, \$7,995,726; of cheroots and tobacco, \$2,024,767; of coffee, \$2,093,518. The islands of the Sooloo Archipelago that were conceded to Spain in 1885 are all those that lie between the island of Mindanao on the east and the islands of Borneo and Aragua.

Politics and Legislation.—The Liberal Premier, whose policy of tolerance and liberty has rendered powerless the revolutionary Republicans who follow the directions of Zorilla and won the partial support or benevolent neutrality of the moderate Republicans, and whom the Conservatives have been unable to upset, notwithstanding the disordered state of the public finances and the commercial and agricultural depression, had to contend in 1889 chiefly with dissentients in his own party. The motive of their secession, or "conspiracy," as it was called, was personal rather than political, and arose from rivalries among the leaders of the Liberal factions and quarrels over the distribution of patronage. There were grounds enough for attacking the Government in the confusion of the finances, the immorality of the officials, who were proved to have embezzled nearly 8,000,000 pesetas of public money in 1888, the inefficiency and corruption of the judicial administration, the prevalence of crime, the corrupt and oppressive government of Cuba, and the disorganization of the provincial administration; but these evils could be treated as chronic, and the Cabinet could claim to be more earnestly endeavoring to cure them than its predecessors. In the early part of the year the Government had to face a revolt of the wine-merchants and exporters of Valencia and other cities against the duty laid on spirits by the law of June 26, 1888. They said it would ruin the export trade in fortified wines with South America, England, and other countries, and actually closed their business, throwing out of employment all the laborers dependent on it, by way of protest. The Government yielded, and before summer introduced a revised law. There was an alarming series of bomb explosions in January and the succeeding months. A gunpowder petard that was discovered in the Bank of Spain, just ready to explode, had been prepared by a skillful and experienced hand. One exploded in the office of the "Imparcial" newspaper, one in the Royal Palace, one in the street where the Queen had just passed by, and one in the Ministry of the Interior. In April a petard destroyed the altar during service in the cathedral of Valencia. An order forbidding officers of the army to write for the public press was defended by Castelar, but was so criticised as an invasion of the personal liberty of the soldiers that the Minister of War promised that it should not be too strictly enforced. A motion made in the Senate on Feb. 6 to increase the duties on grain, cattle, and petroleum was supported not alone by Conservatives and the Protectionist followers of Gamazo, but by a considerable part of the ministerial Senators under the lead of Gen. Martinez Campos and the Duke of Tetuan. The Democratic Left, led by Martos, President of the Chamber, and ex-Minister Moret, protested against the delay in introducing the bill to establish universal suffrage, and accused Sagasta of imperiling the passage of the measure within the legislative period, even if he intended to redeem his promise in regard to the measure. Congress approved the military reforms proposed by the Government. The civil code that had been elaborated by Alonso Martinez was adopted, and his criminal code passed through the preliminary stages



Henry W. Stanley



of debate. The Conservatives interpellated the Government on the subject of the corruption and misgovernment of the civil authorities of Madrid and other cities and their falsification of the electoral lists. Obstruction in the Chamber by the Democrats and the Conservatives, the friends and the enemies of universal suffrage, leagued together, led to violent and disorderly scenes. Martos, who seemed to favor the obstructionists, drew upon himself a vote of censure as the result of his openly taking ground against the ministry on economical questions as the leader of a strong group of dissentient Liberals, including Gamazo, Gen. Cassola, the Duke Tetuan, Gen. Lopez Dominguez, and Romero Robledo, who called for the taxation of capital and incomes. An income-tax of only one per cent. that was proposed by the Minister of Finance had caused an outcry among the commercial and property-owning class, which feared it would soon be followed by greater demands. The majority demanded his resignation when, with his supporters, he declined to vote with the Government against Señor Villaverde's proposition in behalf of the Conservative opposition to raise the duties on cereals, and after a riotous session on May 23 the Queen signed a decree of adjournment. Subsequently the Government declared the session closed, in order to prevent Martos from again taking the chair, and when the Congress was reassembled for a new session on June 14 Alonso Martinez was elected president by the ministerial majority. The Cortes closed their session on July 18 without enacting universal suffrage, or reducing the land and cattle tax, or carrying out other important particulars of the ministerial programme, or even voting the budget for 1889-'90 and the colonial budget. Later in the year Señor Sagasta came to an understanding with several of the dissident leaders, Señor Martos alone manifesting an irreconcilable disposition. The revolution in Brazil produced fresh activity among the Spanish Republicans, especially the Federalists. The Cortes met again on Oct. 29 to vote the budget and discuss universal suffrage and other legislative projects that have been deferred to the last session of the legislative period.

STANLEY, HENRY MORTON, an American explorer, born near Denbigh, Wales, in 1840. His name was originally John Rowlands. When three years old he became an inmate of the poor-house at St. Asaph, where he made such progress in the school that he was employed as a teacher of other children at Mold, Flintshire, when he went away at the age of thirteen. Two years later he sailed as cabin-boy on board a vessel bound for New Orleans, and in that city he found a friend in a merchant, who adopted him and gave him his own name, but died, leaving no will. Young Stanley, left to his own resources, went to California, where he sought his fortune in the gold mines. When the civil war broke out he became a soldier in the Confederate army. He was made a prisoner, and subsequently took service in the United States navy, becoming acting ensign on the ironclad "Ticonderoga." After the close of the war he became a newspaper correspondent, writing a series of letters from Crete and Asia Minor. When the English expedition was sent against King Theo-

dore of Abyssinia in 1867, he accompanied it as commissioner of the New York "Herald." He made his reputation as a correspondent by sending an account of Lord Napier's victory to London before the official dispatches arrived. In 1868 he went to Spain to report the Carlist war for the same paper. He was called away from there in October, 1869, to go in search of Dr. David Livingstone in Africa, from whom no news had been received for more than two years, and who was reported to have been killed, but whom James G. Bennett, proprietor of the "Herald," believed to be still alive. When he arrived in Paris, on a telegraphic summons "on important business," he was directed by Mr. Bennett to act according to his own plans and to do what he thought best, but to "find Livingstone." He first went to Egypt and reported the opening of the Suez Canal, then visited Constantinople and Jerusalem, crossed Russian territory into Persia, made his way into India by that route, and on Oct. 12, 1870, set sail from Bombay in one of the steamers plying between that place and Zanzibar, which he reached early in January, 1871. He organized a large expedition of 192 men, which he sent off in five parties, the first of which went inland by one of the Arab trade routes on Feb. 18, 1871. He accompanied the hindmost caravan, leaving the coast on March 21. His objective point was Ujiji. For the first month he could only make his way through the tropical forest at the rate of four miles a day. He experienced innumerable difficulties not only with insubordinate carriers and native followers, but from the English and Scotch assistants that he had engaged. In the middle of April he learned from an Arab trader that he met that Livingstone was indeed alive and was at Ujiji when the Arab left. When he reached Unyamwebe in June he had accomplished half his journey, but was rendered almost helpless by swamp fever. Moreover, a war between the tribes beyond made it dangerous to proceed, and therefore he halted at that place for nearly three months. While there he heard again that Livingstone was at Ujiji, on Lake Tanganyika, the headquarters in the interior of the Arab slave and ivory trade. Pushing on again at the end of August, he met with fewer natural obstacles in completing the remaining 400 miles of his journey, passing through a fertile and well-peopled country, where every local chief extorted tribute for the privilege of passing through his narrow dominions. On Nov. 10, 1871, he came to Ujiji. His people fired a salute with their rifles and marched into the place with the American colors flying. Livingstone's followers came out and conducted the leader of the search expedition to the house of the veteran Scotch missionary and explorer, who advanced to grasp the hand of the young American. Dr. Livingstone would not return to civilization until he had completed the explorations that he had undertaken. The two travelers passed four months together, and then Stanley returned to the coast, being accompanied as far as Unyamwebe, where there were stores waiting for them both. He was impeded on his return journey by inundations, but made the best progress that he could, and arrived at the town of Zanzibar in May, 1872. There he found

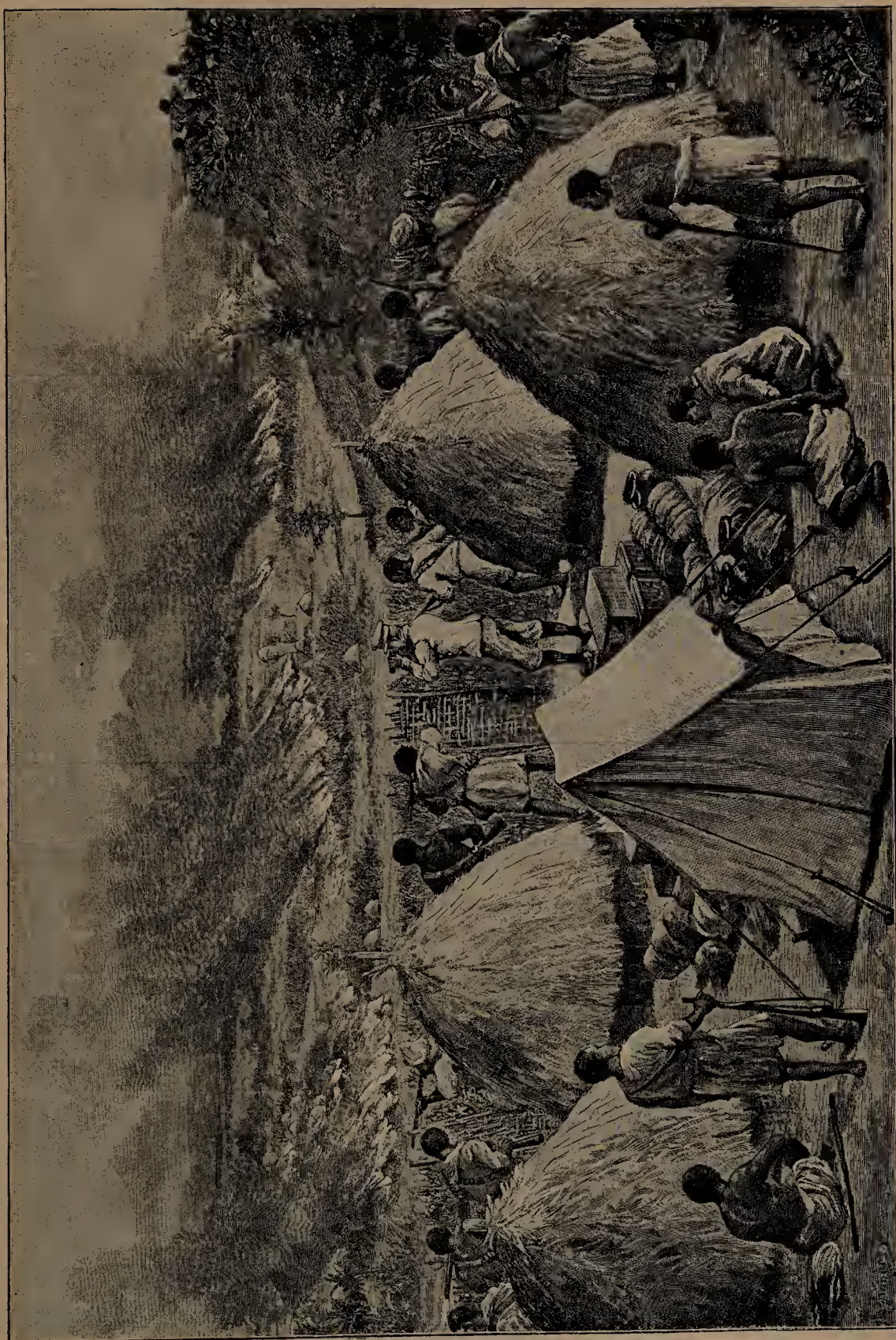
the expedition of the British Geographical Society on the point of setting out in search of Livingstone. This was given up when the members learned of the success of Stanley, who was supposed to have perished; but subsequently Lieutenant Verney L. Cameron undertook a journey of exploration into the interior of Africa. Before leaving Zanzibar Stanley fitted out a caravan, which brought fresh stores and equipments for Dr. Livingstone's proposed exploratory journey. When it arrived at Ujiji at the end of five months the pioneer explorer set out on his last trip, dying of dysentery, which attacked him by reason of the unhealthful condition of the flooded country, on May 1, 1873, before he had finished his chosen task. Stanley reached England in July, 1872, and gave an account of his travels at the meeting of the British Association in August. He received marks and testimonials of honor and admiration from every source. In the November following he brought out his book, giving a narrative of his wanderings under the title of "How I found Livingstone."

In 1874 he set out on his second and most famous African expedition in the commission of the New York "Herald" and the London "Daily Telegraph." He intended to explore the lake region, to seek out Livingstone again, to explore the mysterious river Lualaba that Livingstone supposed to be identical with the Nile, and if, as Cameron and others supposed, it was the Congo, to follow it down to the Atlantic Ocean. He learned at Zanzibar, where he arrived in the autumn of 1874, that Livingstone had died on the shore of Lake Bangweolo. All the other parts of his task he accomplished in the most fruitful and at the same time the most rapid journey that had ever been made by an African explorer. Directing his course to the Victoria Nyanza, he reached it in February, 1875, having met with trying hardships of many kinds and engaged in deadly encounters with the native tribes that attempted to block his progress. Out of 300 followers who set out with him from Zanzibar he lost 104 by death or desertion. He was the first to circumnavigate the Victoria lake, which he found to be a much more important body of water than had ever been supposed, in fact, the largest fresh-water lake on the globe, with an area of 40,000 square miles and a shore line of 1,000 miles. On his way from Ugogo to the lake he discovered the Shimeeyn river, which he took to be the most remote source of the Nile, and on his voyage around the lake he came upon Speke's Kitangulú river, which he rebaptized the Alexandra Nile. The lake he found to be studded with large islands, many of them inhabited. On April 17, 1875, he left the Victoria Nyanza with the intention of exploring the Albert Nyanza. He found that this lake was not connected, as had been assumed, with Tanganyika, plotted the country between the Victoria and Albert lakes, and met with specimens of the fair-skinned tribe of which Gessi had heard accounts, but was not able to do for the Albert Nyanza what he had done for the larger lake on account of the hostility of the natives. He therefore returned to Ujiji, exploring Lake Tanganyika and examining the supposed Lukuga outlet, which he found was not at that time an outlet, but thought might be one periodically when the sur-

face of the lake rose to a certain level. After his examination of the shores of Tanganyika he was undecided whether to solve the problem of the Lualaba or return home, and determined the matter by the toss of a coin with his assistant Pocock. He embarked on the great river, which he named Livingstone in honor of its discoverer, and descended it in canoes in eight months, reaching the coast in August, 1877. The perils and privations that he passed through exceeded any that he had before endured. Of his attendants 35 died or were killed in battles with the natives on the river. Arriving at a Portuguese settlement on the Atlantic coast, he was conveyed on a war-vessel to San Paul de Loanda, whence the next English steamer that touched carried him and his Zanzibar carriers to Cape Town, and another steamer took them to their homes. The explorer reached England in February, 1878. The French Government, on June 28, 1878, presented him with the cross of the Legion of Honor. The account of his travels, sufferings, and geographical discoveries was published in a book called "Across the Dark Continent" (1878).

Leopold, King of the Belgians, determined to aid with his great private fortune in the commercial development and civilization of the rich regions that the traveler had passed through in his descent of the Congo. Accordingly, the International African Association was formed, and Stanley was intrusted with the task of carrying out its philanthropic objects. He had at his disposal abundant means, King Leopold offering to give \$250,000 a year. Going to the mouth of the Congo in the year after his return, he first built a road along the side of the lower Congo through the hilly section traversed by the rapids. When transportation of bulky objects was thus made possible between Emboma and Stanley Pool, he had steamers conveyed to the upper river in parts. For four years he stood at the head of the Belgian enterprise, from which was developed the Free State of the Congo with recognized sovereign rights over the Congo basin and an international guarantee of neutrality. During that period he planted trading-stations along the river from the pool to Stanley Falls, a distance of 1,400 miles, and established a beginning of civil government throughout that region. He declined the proffered governorship of the Free State, retiring from its service in 1883, after completing a new expedition to the equator. While he directed the operations of the Belgian society in Africa he resisted the pretensions of France, put forward by M. de Brazza, to the sovereignty of both sides of the Congo, which would have deprived the Congo State of access to the upper Congo and its tributaries, and thus defeated all its objects. He described his actions in connection with King Leopold's enterprise in the volume called "The Congo and the Founding of the Free State."

Near the close of 1886 Stanley, under the auspices of the Egyptian Government and of English societies and individuals, undertook an expedition for the relief of Emin Pasha, who had of his own will continued to exercise the functions of Egyptian Governor of the Equatorial Province after the Soudan was abandoned. Emin Pasha, who was Dr. Eduard Schnitzer, a German



FIGHT IN MAJAMBONI'S COUNTRY—BURNING THE VILLAGES.

physician, had begged, in his earnest and pathetic letters, not to be rescued personally from his perilous situation, but to be relieved by a small military force that would save to civilization the country he had faithfully protected from the onset of Mohammedan fanaticism. He had implored England to take over the province, and when convinced of her apathy turned to Germany. The British Government was not willing yet to take any political action in respect to the Soudanese provinces of Egypt, and would not suffer Germany to interfere in that region, and, to avoid the political responsibilities and complications that might result, the weight of English influence was cast against the route from the Indian Ocean that Dr. Junker, the Russian explorer, Dr. Schweinfurth, and other experienced travelers joined with Emin in recommending. Sir William Mackinnon, the millionaire Scottish philanthropist, and other British contributors approved the untried route from the Congo, and the King of the Belgians offered the aid of the resources of the Congo Free State.

Leaving England in January, 1887, Stanley went first to Zanzibar, where he recruited 620 Zanzibaris, with whom he sailed for the mouth of the Congo. He was accompanied also by 74 other Africans and by 9 Europeans when he left Stanley Pool, in steamers placed at the disposal of the expedition by the Congo Free State, on April 30, 1887. The furthest settlement of the Free State at Stanley Falls had been abandoned in consequence of the hostility of the Arab slavers. In order to restore tranquillity and insure the safety of the expedition the Free State Government, at Stanley's suggestion, had made the chief slave-trader, Tippoo Tib, the salaried administrator of the Stanley Falls district, in which he promised to preserve order. He also agreed to furnish 600 Manyema warriors from the fierce tribe over which he rules in the neighborhood of Nyangwe on the upper Congo. Stanley approved the route by the Congo and Aruwimi because he accepted the calculations that were made in Brussels that the march to the Equatorial Province from the Aruwimi would be less than half the distance from either Zanzibar or the Somali coast, and that the march from Yambuya, the head of navigation on the Aruwimi, to Wadelai could be made in two months.

The white companions of Stanley were Major Barttelot, who had served with distinction under Gen. Wolseley in Egypt; Major Sir Andrew Clarke; Lieut. Stairs, of the Royal Engineers, who had charge of the Maxim mitrailleuse firing 600 balls a minute; Capt. Nelson, of Leeds; Dr. Parke; Rose Troup, an English employé of the Congo State; Mounteney Jephson; William Bonny; and Mr. Jameson. Of these, two returned to England long before the termination of the adventure and three perished during the wanderings of the expedition through 4,500 miles of trackless forests, pestilential marshes, rugged mountains, and valleys peopled with enemies. From June, 1887, till December, 1889, the party was lost in the dark continent, and no definite news reached the bounds of civilization. Soon after he entered the gloomy forest on the banks of the Aruwimi word came back to the rear-guard that Stanley had sickened and died; a year later the Mahdists boasted that they held him and Emin

prisoners at Khartoum, and at several times before Capt. Wissmann, the German commander in Usagara, received at Mpwapwa the intelligence of the advent of Stanley safe and sound, Arab slave and ivory merchants brought to the east coast rumors of his death.

On April 26, 1887, the expedition left Leopoldville, and in June the leader was at Yambuya on the Aruwimi, where he left Major Barttelot with 257 men in charge of the main part of the stores, to await the coming of the promised re-enforcements from Tippoo Tib. This questionable ally was tardy in sending the Manyema, and when Major Barttelot and Mr. Jameson obtained 400 men by going to Stanley Falls after them, either the mutinous disposition of the savages, who refused to carry full loads of ammunition, or the treachery of their chiefs, who perhaps coveted the stores and compassed the failure of the relief expedition, or possibly the rash and imperious demeanor of Major Barttelot, led to his murder and the breakdown of the rear-guard through desertion and pillage at Banalya after it had set out in the tracks of Stanley's advance. Mr. Jameson collected the remnants of the party at Yambuya, and after his death Mr. Bonny held them together, while Salim bin Mohamed, with 2,000 men, camped in the neighborhood, ready to exterminate them.

Stanley's march met with unforeseen difficulty, owing to the dense undergrowth of the forest through which it was necessary to hew a path. He changed his course northeastward, regained the river above the rapids, and launched his sectional steel boat, which carried a considerable part of the stores and the sick as far as the confluence of the Ihuri and Ituri, whence the parts of the boat and its cargo were again slung on men's backs and carried through the sunless, pathless wood, which extended almost to Kavalli, on the shore of Albert Nyanza. With 389 Zanzibaris he ascended the Aruwimi. When he struck across the country in the direction of Albert Nyanza, he was deflected from his route by hostile tribes and compelled to find his way through almost impenetrable swamps and forests. He was prostrated with sickness, and many of his people perished from fever and hunger.

In one of Stanley's letters he describes this part of the journey:

From July 5 to the middle of October we clung to the river. Sometimes its immense curves and long trend northeast would give me sharp twinges of doubt that it was wise to cling to it; on the other hand, the sufferings of the people, the long continuity of forest, the numerous creeks, the mud, the offensive atmosphere, the perpetual rains, the long-lasting mugginess, pleaded eloquently against the abandonment of the river until north latitude 2° should be attained. North latitude 2° I put down as the limit; I would prefer to dare anything than go farther north. In favor of the river was also the certainty of obtaining food. Such a fine broad stream as this, we argued, would surely have settlements on its banks; the settlements would furnish food by fair means or force.

There were villages on the banks, but the people would only sell food at exorbitant prices or not at all. The explorer in such cases resorted to force, capturing and burning the villages, and supplying his party with provisions. On Aug. 13, 1887, at Avi Sibba, they were attacked from

the opposite side of the river, and Lieut. Stairs, who tried to cross the stream, was hit by a poisoned arrow. He recovered, although the poison was fatal for five of the Suaheli who were wounded. At the rapids, near the fork of the Ituri and Ihuri, Capt. Nelson, with those who were sick or lamed by thorns, remained in camp, and many of them died of starvation, while Stanley, with the rest, going in search of food, encountered hostile tribes, and was prostrated with fever. When the expedition emerged from the forest through which it had toiled for more than five months, it was harassed by the Majamboni until their chief village was burned and a large number of their people shot.

Toward the end of December, 1887, the expedition having reached the Nyanza, and being unable to communicate with Emin Pasha, it was decided to return to the forest, build a strong

came into the camp. Returning to Yambuya for the stores and ammunition, he found that the commander had been murdered, the camp plundered, and the garrison reduced by disease and desertion to 71 men, one third of whom were invalids. Nevertheless, he returned to Emin Pasha.

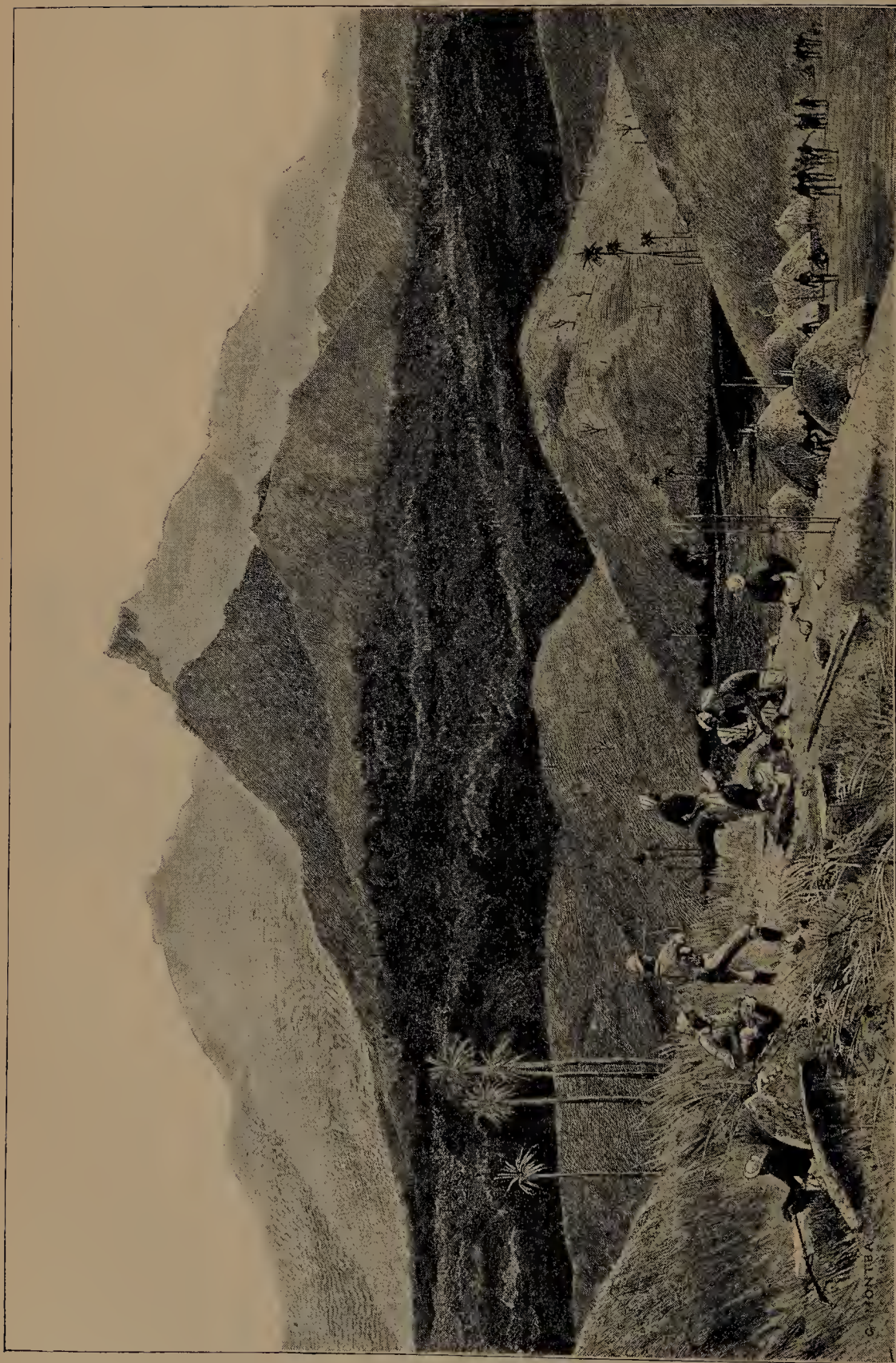
The route from Yambuya to Kavalli was divided into stages, each of which occupied many days of toilsome marching and often cutting a path through the forest, with long delays, so that the average movement of Stanley's advance column was little better than two miles daily. The first stage was 184 English miles, from Yambuya northeast up the Aruwimi to Mugwé's villages, on the north bank of the river. The second stage was 59 miles, from Mugwé's villages to Avi Sibba, villages on the south bank. The third stage was 39 miles, from Avi Sibba to the confluence of



FORT BODO, IBWIRI.

fort, get up the steel boat from Kilunga-Lunga, leave the weakly ones at the fort, and again make a move to the lake. Accordingly, the village of Ibwiri was chosen, and on Jan. 7, 1888, the fort was begun. Some collected long poles, others the boards used by the natives in building their villages, others cut long vines to be used as rope, and others dug the holes in which the uprights were to be placed. The poles having been placed in position, two and two, the boards were inserted lengthwise between these and secured, lashed home with strong vines, and so on until a secure arrow-proof "boma," 10 feet high, surrounded the whole place. Four towers were placed—two at the east and west angles, and one on the north and one on the south faces—to give efficient flank defense. A ditch, 8 feet wide and 7 feet deep, was dug on the north side, and every means possible adopted to make the place secure against surprise. They had many fights with the diminutive Wambutti who inhabited the region. At Fort Bodo Stanley left 59 men with Capt. Nelson. On April 29, 1888, Emin and Casati

the Nepoko, a large river from the north, with the Aruwimi. The fourth stage was 93 miles, from the Nepoko confluence, or Avi Jeli, to the temporary Arab settlement of the notorious slave-dealer and ivory-hunter, Ugarroa. The fifth stage was 162 miles, by a new road opened in the following year, on the north bank—not the route of the first advance in 1887—to Fort Bodo, in Ibwiri, the depot station constructed by Stanley in 1888. The sixth stage was 126 miles, Fort Bodo to Kavalli, at the south end of Albert Nyanza. The journey from Yambuya back to the lake was begun in August, and on Dec. 20 the expedition came to the shore of Albert Nyanza. They passed through the country of the Akka dwarfs, nearly perishing with hunger, and when they reached the Albert Nyanza Emin's soldiers had mutinied and he was a prisoner. An invasion of the Mahdist dervishes impelled the governor's enemies to liberate him. He was still unwilling to leave the province, but when Stanley and his white companions determined to attempt to reach Zanzibar by an unexplored south-



RUWENZORI, OR MOUNTAINS OF THE MOON, DISCOVERED BY THE STANLEY EXPEDITION.

erly route, since the revolution in Uganda had closed that country to whites, Emin decided to extricate himself and the 400 Egyptians who chose to follow. Nearly four months were spent in the effort to overcome the scruples of Emin Pasha and Capt. Casati about deserting their people. Stanley, suspecting a plot of the mutinous Arab officers to seize his ammunition, threatened to exterminate them.

Stanley was again taken ill, and was near death. When he recovered the march began on April 10, 1889. Emin said there were 10,000 people who would have to be extricated; but Stanley refused to wait longer for the fugitives to assemble, and the governor, who had become nearly blind, brought away with him only 514 persons. A circuitous southeasterly route to the stations on the shore of Victoria Nyanza was chosen, in order to avoid as far as possible the country of their enemy Kabrega, King of Unyoro. They passed along a range of snow-capped mountains that culminated in the Ruwenzori peak, nearly 19,000 feet above the sea. This range Mr. Stanley identifies with the Mountains of the Moon shown on the old maps. The position of Ruwenzori, as shown in the new map, is less than one degree north of the equator, and in 30° of east longitude. The mountain range to which it belongs, parallel with Semliki river, extends southwest from a point of the Unyoro tableland opposite the south end of Albert Nyanza, and is about ninety miles long. The Wakonju, who till the slopes of the mountains, are often compelled to retreat up to the edge of the snow on the approach of Kabrega's Warasura slave-raiders. From the south the waters of the large lake that Stanley named Albert Edward Nyanza, in honor of the Prince of Wales, flow into the Albert Nyanza through a considerable river called the Semliki. The King of Unyoro had lately conquered this region and held possession of a salt basin yielding an inexhaustible supply of the rare and precious mineral. They fought their way through the Wanyoro, driving them away from the salt lake, and thus earning the gratitude of the tribes beyond, who received them hospitably. On leaving the salt lake of Kative, the expedition passed around the northern extremity of Albert Edward Nyanza, through the country of the Wasangora, who have been nearly exterminated by the Warasura and Waganda, over the populous Ankori plateau, and through Toro, Ruanda, and Karagwe, peopled by fine specimens of the negro race showing, in Stanley's opinion, an admixture of Abyssinian blood, to Uzinja. The course of march from Albert Edward Nyanza to the Uzinja country on the southwest shore of the Victoria Nyanza was nearly a direct line. An arm of the Victoria lake extends southwest, reaching within 155 miles of Lake Tanganyika. The shore line as marked by previous explorers Stanley found to be only a succession of islands, behind which the lake extends over a surface of 6,000 square miles. On Aug. 28, 1889, they reached A. M. Mackay's missionary station at Msalala, in the country of the Wanyamwesi. The party passed south of Lake Victoria, through Uyamwesi, halted on Nov. 10 at Mpwapwa, where the Germans had a garrison, and finally emerged at Bagamoyo on Dec. 4, 1889. The caravan had dwindled, since it left

Albert Edward Nyanza, from 1,500 to half that number. Stanley's latest journey in Africa lasted 1,012 days, of which hardly twenty were devoid of perils or tragic incidents. The cost of the expedition was \$150,000. (See GEOGRAPHICAL PROGRESS AND DISCOVERY in this volume, especially the map on page 349. See also the title EMIN PASHA in the "Annual Cyclopædia" for 1887 and 1888.)

SWEDEN AND NORWAY, two kingdoms in northern Europe, united in a personal and federal union by the act of Aug. 6, 1815. They have a common diplomacy, which is directed by a Council of State, composed of Swedes and Norwegians. The reigning monarch is Oscar II, born Jan. 21, 1829, who succeeded his brother Carl XV on Sept. 18, 1872. The heir-apparent is Prince Gustaf, Duke of Wermland, born June 16, 1858.

SWEDEN.—The legislative authority is vested in a Diet of two Chambers, the first consisting of 145 members, elected by provincial and municipal bodies, and the second of 222 members, elected directly, or in the smaller towns and country districts indirectly, if the majority so determines. Of the total number, 76 are chosen by the people of the towns and 146 by the people of the rural districts, under a property qualification. The qualified voters constitute 5.9 per cent. of the total population. The Council of State is composed of the following members: Baron Didric Anders Gillis Brandt, Minister of State; Count Albert Carl August Lars Ehrens-vård, Minister of Foreign Affairs; Per Axel Bergström, Minister of Justice; Baron Nils Axel Hjalmer Palmstjerna, Minister of War; Baron Carl Gustaf von Otter, Minister of Marine; Julius Edvard von Krusenstjerna, Minister of the Interior; Baron Frederik von Essen, Minister of Finance; Gunnar Wennerburg, Minister of Education and Ecclesiastical Affairs; Johan Henrik Lovén; Gustaf Walter Leopold Lönnegren.

Area and Population.—The area of Sweden is 170,979 square miles. The population on Dec. 31, 1888, was 4,748,257, of whom 2,301,104 were males and 2,447,153 females. The number of marriages in 1887 was 29,517; of births, 144,019; of deaths, 80,077; excess of births over deaths, 63,942. The population of Stockholm, the capital, in 1888 was 234,990. The number of emigrants in 1887 was 50,786, against 32,889 in 1886, 23,493 in 1885, 23,560 in 1884, 31,605 in 1883, 50,178 in 1882, and 45,992 in 1881, the average for the previous ten years having been 15,027.

Finance.—About two thirds of the revenue is derived from indirect taxation and one third is the product of direct taxes and national property. The total revenue is set down in the budget for 1890 as 92,767,000 kronor, including a surplus of 5,582,000 kronor carried over from the preceding year. The receipts from the land tax, and from domains and forests, railroads and telegraphs, classed as the ordinary revenue of the Government, amount to 19,985,000 kronor, and the extraordinary receipts to 65,900,000 kronor, including 37,000,000 kronor from customs, 13,700,000 kronor from the duty on brandy, 6,900,000 kronor from the post-office, 3,700,000 kronor from stamped paper, and 3,700,000 kronor from the income tax. The amount of the public debt on Jan. 1, 1889, was 264,893,336 kronor.

The Army.—The Swedish army in 1889 comprised 38,330 troops of the line and 149,016 militiamen. The enlisted troops, exclusive of officers and employés, numbered 8,661, and the cantoned troops 27,162. The total number of officers was 1,911; the number of guns was 246, and of horses 6,691.

The Navy.—The fleet of war in 1889 comprised 63 steam vessels, none of them large. There were 2 armored gunboats of the first, 4 of the second, and 10 of the third class, 19 small gunboats, 1 school ship, 1 frigate, 3 corvettes, 3 avisos, 1 school torpedo vessel, 18 torpedo boats, and 6 transports.

Commerce.—The imports in 1887 had a total value of 297,410,000 kronor, of which 88,888,000 kronor came from Germany, 73,695,000 kronor from Great Britain, 47,471,000 kronor from Denmark, 23,435,000 kronor from Norway, 20,980,000 kronor from Russia, 9,547,000 kronor from Belgium, 6,860,000 kronor from Finland, 6,611,000 kronor from the United States, and 6,218,000 kronor from France, the Netherlands coming next with 5,518,000 kronor. The total value of the exports was 246,678,000 kronor, of which 110,051,000 kronor went to Great Britain, 32,029,000 kronor to Denmark, 27,226,000 kronor to France, 24,275,000 kronor to Germany, 12,363,000 kronor to Norway, and smaller amounts to Belgium, Holland, Spain, and other countries, the share of the United States being 2,806,000 kronor. The imports of cereals were 25,700,000 kronor in value, and the exports 28,500,000 kronor; imports of colonial wares, 33,500,000 kronor; imports of spirits, 5,600,000 kronor; exports, 2,200,000 kronor; imports of tobacco, 8,400,000 kronor; imports of animals and animal produce, 10,000,000 kronor; exports, 31,400,000 kronor; imports of coal, 15,800,000 kronor; of hides and leather, 8,000,000 kronor; of textile materials, 16,400,000 kronor; exports of metal, 32,300,000 kronor; of timber, 78,100,000 kronor; imports of metallic objects, 8,400,000 kronor; of textile manufactures, 38,700,000 kronor; total exports of manufactured articles, 18,000,000 kronor; imports of all other merchandise, 125,500,000 kronor; all other exports, 37,100,000 kronor. The customs treaty between Sweden and Norway was renewed in 1888. The tariff convention with France will expire in 1892, being terminable on twelve months' notice from that year. The Spanish treaty of commerce, granting special advantages for the importation of Swedish spirits, was prolonged by the agreement of Jan. 18, 1887, till Feb. 1, 1892.

Railroads, Posts, and Telegraphs.—The length of railroads open to traffic at the close of 1888 was 7,527 kilometres, of which 2,531 kilometres belonged to the United States and 4,996 kilometres to companies.

The number of letters sent through the post-office in 1888 was 54,211,227, inclusive of postal cards; the number of circulars and samples, 5,731,013; the number of newspapers, 47,164,882. The receipts were 6,598,040 kronor, and the expenses 6,561,924 kronor.

The Government telegraphs in 1888 had a length of 8,190 kilometres, including 101 kilometres of cable. The length of wires was 21,354 kilometres. The receipts were 1,447,511 kronor, expenses 1,276,772 kronor.

Politics and Legislation.—The Rigsdag was opened by the King on Jan. 17. Among the projects announced for legislative action were workmen's accident insurance, the creation of a department of agriculture in the Ministry of the Interior, regulation of the obligation to build roads, the adoption of an improved infantry weapon, conversion of the militia cavalry into enlisted troops, arrangements for mobilization of the army in case of war, and the continuation of the Northern Trunk Railroad to Lulea. The financial position of the Government and the economical condition of the country had improved since the formation of the Bildt Cabinet. The autumn elections had given the Government a Protectionist majority in both Houses; but the new ministry experienced the same difficulty as its predecessors in obtaining the consent of the farmers, who preponderate in the Lower Chamber, and the nobility, whose influence is greatest in the other, to the political and military policy that the King and his advisers have for many years pursued. The land owners have obtained protective duties on the necessities of life, and demand that they shall be made higher; yet, instead of permitting the increase in the revenue from this source to be used for the benefit of the classes injuriously affected by the new taxes, they insist on applying it to the remission of the taxes on land. They have been relieved of a part of the burden of the mediæval *indelta*, or cantoned troops, as a preliminary step to the introduction of universal obligatory military service, and press for the abolition of the rest, and still the farmers are stubbornly opposed to the modern military system because it would require their personal service. A proposition to reduce the land tax was negatived by the First Chamber after it had passed the other House. The people of towns of more than 10,000 inhabitants have double the representation in proportion to their numbers. The urban population is rapidly increasing, being 860,208 in 1888. Still the agricultural population elects two thirds of the members of the Second Chamber. The Swedish Government has followed the German in its treatment of the labor question. A commission was appointed in 1884 to consider a scheme of industrial legislation. The first outcome of its labors was the accident-insurance bill that was introduced in 1889 and was approved by both Chambers. A scheme of old-age insurance was also elaborated by the commission. It requires every member of a commune from the age of nineteen to pay for ten years 25 öere weekly, or the sum of 104 kronor may be paid at once for the entire period. This premium gives the right to an annuity of 72 kronor from the age of sixty years. If any person is unable to pay, the commune must discharge the obligation for him. Larger contributions will be received up to the maximum of 1 kronor 25 öere per week, which secures an annuity of 138 kronor from the age of forty, or of 432 kronor from that of sixty years. Socialism has made great strides among the Swedish working people. After a socialistic congress that was held in April, the Government offered a repressive bill, borrowed from the anti-socialist legislation of Germany. It prescribed criminal penalties for inciting to disobedience of the laws or resistance to the authorities or to acts threat-

ening the existing order of society or involving danger to its continuance. The Second Chamber would not sanction the latter clause, which was stricken from the bill. The Rigsdag rejected a proposition to impose export duties on Swedish iron ore and raw iron.

The extreme Protectionists called for the retirement of the remaining Free-Traders in the Cabinet, and even of the moderate Protectionists, like Bergström, Löngren, and the Prime Minister himself. During the session it was not thought advisable to make changes, but after the separation of the Rigsdag, on May 18, it was high time that the Cabinet should be made homogeneous, in view of the contemplated action in regard to the commercial treaties. The opinion of the country was in favor of denouncing all the treaties that expire in 1892 and obtaining full liberty to adjust new ones that might be made to the protectionist system. Protection in Sweden is far from effective as long as the Norwegian treaty of 1874 remains in force. To terminate this, notice must be given before the spring of 1890. Count Ehrensward, a Free-Trader, who was continued in office when the Themp-tander ministry retired, resigned in June, and was succeeded by Baron Akerhjerm. A. Ostergren, on June 12, became chief of the Department of Justice. Subsequently Baron Bildt retired, together with Krusenstjerna and Lovén, the remaining Free-traders, and on Oct. 12 the Cabinet was reconstructed as follows: Minister of State, Baron J. G. N. S. Akerhjelm; Minister of Foreign Affairs, Count C. Lewenhaupt; Councilors: Baron C. G. von Otter, Chief of the Department of Marine; V. L. Groll, Chief of the Department of the Interior; S. H. Wickblad; Dr. G. Wennerberg, Chief of the Department of Ecclesiastical Affairs; Major-General Baron N. A. H. Palmstjerna, Chief of the War Department; E. Bull, Chief of the Department of Finance; A. Ostergren, Chief of the Department of Justice; Baron A. L. E. Akerhjelm.

The Swedish Government objected to the new Spanish spirit tax, on the ground that it was an infraction of the commercial treaty of 1883. The question was referred for arbitration to the Portuguese minister in Madrid, who decided that since it was a matter of internal policy the duty did not conflict with the Hispano-Swedish commercial convention.

NORWAY.—The members of the Storthing, the legislative body of the kingdom, are elected for three years by all Norwegian citizens owning land or paying an income tax on an annual income of 500 kronor in the country districts, or 800 kronor in the towns. The method of election is indirect. One fourth of the members of the Storthing form a separate chamber called the Lagthing, to review the bills that passed the main body, which is called the Odelsting. If the two Houses can not agree regarding a measure, it is considered in a joint session, and can be passed by a two-third majority. Measures can be passed over the King's veto by the votes of three successive Storthings. The executive power is exercised under the King by a Council of State. The Council of State at Christiania in 1889 was composed as follows: E. Stang, Minister of State and Chief of the Department of Revision; J. A. Bonnevie, Chief of the Depart-

ment of Worship and Public Instruction; P. Birch-Reichenwald, Chief of the Department of Public Works; J. H. P. Thorne, Chief of the Department of the Interior; E. Rygh, Chief of the Department of Finance and Customs; F. N. Roll, Chief of the Department of Justice and Police; and Colonel E. H. Hoff, Chief of the Department of Defense. The delegation of the Council of State sitting at Stockholm, near the King, is composed of G. W. W. Gram, Minister of State, and Councilors U. F. C. Arneberg and O. A. Fura.

Finances.—The gross receipts of the treasury in the year ending June 30, 1888, were 44,364,400 kronor, of which 20,584,700 kronor were derived from customs, 6,390,800 kronor from railroads, 2,431,900 kronor from the post-office, 2,296,200 kronor from the impost on spirits, 1,911,000 kronor from the malt duty, 1,434,700 kronor from mines, domains, and forests, and 1,947,300 kronor from invested capital funds. The expenditures were 44,595,700 kronor. The national debt on June 30, 1888, amounted to 105,283,300 kronor, and the value of the railroads and other productive assets was 138,281,800 kronor.

The Army and Navy.—The troops of the line, limited by law to 18,000 men and 800 officers, are drilled for forty-two days in the infantry, and seventy days in the cavalry and artillery the first year, and twenty-four days in the second, third, and fourth years. The *landvaern*, or militia and the *landstorm*, or final levy, embracing all men capable of bearing arms, can only be called out for the defense of the borders of the kingdom. A reorganization of the military forces was approved by the Storthing in 1887.

The naval forces in 1889 consisted of 4 monitors, 2 steam frigates, 2 corvettes, 3 large and 28 gunboats, 9 torpedo boats, and 7 other vessels.

Commerce.—The imports in 1888 amounted to 158,397,000 kronor, of which 44,224,000 kronor came from England, 42,591,000 kronor from Germany, 20,552,000 kronor from Russia and Finland, 19,444,000 kronor from Sweden, and 8,977,000 kronor from Denmark, the United States coming next with 6,308,000 kronor. The exports were valued at 122,357,000 kronor, of which 39,768,000 kronor went to England, 17,022,000 kronor to Sweden, 16,328,000 kronor to Germany, 10,499,000 kronor to Spain, 8,886,000 kronor to France, and smaller amounts to Russia, Belgium, Holland, Italy, Austria, and the United States, which received 1,361,000 kronor. The timber export was 27,700,000 kronor, 13 per cent. more than in 1887.

Railroads, Posts, and Telegraphs.—The length of the railroad lines open to traffic in 1889 was 1,562 kilometres. The post-office in 1888 forwarded 16,840,800 domestic and 8,588,200 foreign letters and 22,870,200 newspapers. The receipts were 2,471,025 kronor, and the expenses 2,502,856 kronor. The state telegraph lines at the end of 1888 had a total length of 7,486 kilometres, with 14,012 kilometres of wire. The receipts were 948,738 kronor, the expenses 1,061,068 kronor. The railroads had 1,585 kilometres of telegraph lines.

Politics and Legislation.—The dissatisfaction of the Radicals with the ministry of Johan Sverdrup, and their organization into an independent party in 1888 left the Ministerial group

the smallest of the three composing the Storting. There were 51 members of the Constitutional Right, 38 of the Radical Left, 23 of the Ministerial Left, and 2 unattached. The Radical ministers having left the Cabinet, the ministry allied itself with the Conservatives, who had been excluded from the Lagthing and the presidential posts while the Democratic party remained united. On the organization of the Storting, Feb. 2, 1889, 12 Conservatives, 10 Radicals, and 6 Ministerialists were chosen to compose the Upper House, and Emil Stang, the leader of the Right, was elected President of the Storting. After the resignation of the Radical Democrats in the Cabinet, the post that had been held by Sørensen remained unfilled till January, 1889, when it was accepted by Thiesen, a member of the Moderate Left. In the recent elections seven of the eight presidents and vice-presidents of the Storting and its divisions and the leading men in the Radical fraction had failed to be re-elected to the Storting. Of the 114 members 42 had never sat before, and only 54 had belonged to the former Storting. The legislative session was formally opened by the King on Feb. 8. The speech from the throne announced that among new measures to be presented were a bill for the regulation of factory labor, which was intended as the initial step in a series of public measures for the improvement of the economical and social condition of the working classes, a bill relating to military service, and changes in the criminal laws necessitated by the jury law. The Government promised to proceed with reorganization of the military system as fast as the financial resources would permit, and proposed the continuation of existing railroad lines and the construction of a new one in the southwest. The revenue was increasing, and the Storting was asked to lower the duty on salt, but to raise those on wheat, tea, spices, and fruits. The Right opposed the introduction of trial by jury, although the Storting had voted for it two years before. Leistöl, one of the Councilors of State, resigned in March, and was succeeded by Liljedahl, an accomplished parliamentary speaker, and Baron Akerhjelm became Minister of Foreign Affairs. In the beginning of June, E. Bull became Minister of Finance. In a convention at Hamar, in June, the advocates of national equality with Sweden formulated their demands as follow: 1, abolition of the Norwegian vicereignty; 2, abolition of the delegation of the Council of State in Stockholm; 3, regulation of diplomatic affairs in the manner proposed by Sverdrup in 1885; 4, abolition of the union symbol in the Norwegian flag. The Storting voted an address to President Carnot, expressing disapproval of the absence of Count Lewenhaupt, the Swedish and Norwegian minister from the Paris Exposition. The position of the first Parliamentary ministry in Norway, supported by a smaller minority than any previous ministry had commanded for several decades, was objected to from principle by the Radicals, who proposed a vote of censure in the spring. The Conservatives, who were unwilling to assume the direction of the Government, partly because they feared that the divided Democratic factions would soon unite to upset them, and partly because they wished to leave to the

Democrats the responsibility of carrying out the innovations that they had legislated in the Storting, expecting that the country would condemn them when put into practice, voted with the Ministerialists. The leaders of the Right refused the proffered fusion with the followers of Sverdrup, who constantly lost ground. Officials resigned, and ministerial posts were filled by subordinates or by ministers irregularly appointed, like Stang. At length the Prime Minister was impelled to make terms with the Radicals, and agreed to dismiss the obnoxious ministers and appoint men from the Left. The Radicals insisted that the entire Cabinet should resign, that it might undergo a thorough reconstruction. On July 2 the ministers sent in their resignations to the King; but he, instead of commissioning Sverdrup to form a new Cabinet, sent for the leader of the Conservatives. The Storting closed on July 3. In his letter accepting the resignation of the ministers, King Oscar, who had arrived in Christiania, said that he considered it his duty to exercise his constitutional prerogative of choosing himself a Council of Norwegian citizens. The new ministry, which was constituted on July 12, was taken from the moderate section of the Constitutional Right.

SWITZERLAND, a federal republic in Central Europe. The Federal Legislature is composed of the State Council, in which each of the twenty-two cantons is represented by two members, and the National Council, containing one member to every 20,000 people, elected by direct universal suffrage. The executive powers are exercised by the Federal Council, which in 1889 was composed of the following members: President, B. Hammer, of Solothurn; Vice-President, Louis Ruchonnet, of Vaud; Dr. K. Schenk, of Bern; Dr. E. Welti, of Aargau; Dr. N. Droz, of Neuchâtel; Dr. A. Deucher, of Thurgau; W. Hauser, of Zürich. On Dec. 10, 1889, M. Ruchonnet was elected President, and Dr. Welti Vice-President of the Swiss Confederation for the year 1890.

Area and Population.—The area of Switzerland is 41,346 square kilometres, or 15,892 square miles. The population, according to the provisional results of the census of Dec. 1, 1888, is 2,934,057, comprising 1,427,377 males and 1,506,680 females. The domiciled population was 2,920,723. The number of foreigners was 238,313. The population was divided in respect to religion into 1,724,957 Protestants, 1,190,008 Catholics, 8,386 Israelites, and 10,706 others. Of the 2,934,057 inhabitants, 2,092,530 speak German, 637,972 French, 156,606 Italian, 38,375 Romansch, and 8,572 other languages. The number of emigrants in 1888 was 8,346, of whom 6,764 were destined for the United States. The emigration in 1887 was 7,558; in 1886, 6,342; in 1885, 7,583; in 1884, 9,608. The city of Zürich, with its suburbs, contained 90,111 inhabitants in 1888; Geneva, 72,254; Basle, 69,814; Bern, 45,966.

Finance.—The receipts of the Federal treasury in 1888 were 59,882,864 francs, of which 26,086,144 francs were from customs and 21,591,832 francs from the post-office. The total expenditures were 58,555,088 francs, the largest items being 19,837,573 francs for the post-office and 18,637,214 for military administration. The debt

of the Federation on Jan. 1, 1889, was 40,492,868 francs, and the assets were 82,577,811 francs. A new loan of 25,000,000 francs was contracted in July, 1889, for the purpose of equipping the army with repeating rifles and other new arms.

The Army.—The regular army, composed of men between the ages of twenty and thirty-two, consisted in 1888 of 95,651 infantry, 2,921 cavalry, 17,793 artillery, 5,037 engineers, 1,880 sanitary troops, 1,149 administrative troops, and 382 commissioned and non-commissioned officers in retirement. The Landwehr, comprising all men fit for military service between the ages of thirty-two and forty-five, consisted of 65,326 infantry, 2,785 cavalry, 9,783 artillery, 1,644 engineers, 741 sanitary troops, and 213 administrative troops, or 80,715 men in all, which, added to the 125,570 men of the active army, make the effective strength of the army 206,285, exclusive of the Landsturm, which embraces all citizens between seventeen and fifty years of age who are not enrolled in the Auszug or Landwehr.

Commerce.—The special commerce of 1888 divided according to the countries of origin and destination, was of the following values, in francs :

COUNTRIES.	Imports.	Exports.
Germany	253,771,000	164,487,000
France	202,817,000	142,010,000
Italy	115,841,000	51,486,000
Great Britain	43,861,000	104,735,000
Austria-Hungary	95,964,000	33,165,000
Belgium	27,587,000	10,933,000
Russia	25,044,000	10,992,000
Netherlands	8,082,000	4,299,000
Rest of Europe	5,923,000	21,876,000
United States	21,949,000	87,036,000
Rest of America	4,467,000	11,861,000
Asia	6,952,000	24,246,000
Africa	13,065,000	8,457,000
Australia and Polynesia	1,470,000	2,527,000
Total	827,079,000	673,060,000

Railroads.—The railroads in 1887 had a length of 2,812 kilometres. The cost of construction was 1,048,791,246 francs. The number of passengers was 25,762,822 during the year, the quantity of merchandise transported was 8,333,503 tons of 1,000 kilogrammes. The receipts were 78,859,089 francs. The working expenses were 44,224,599 francs.

The Post-Office and Telegraphs.—The number of internal letters and post cards conveyed in 1888 was 65,001,864; circulars and samples, 17,752,199; packages, 8,852,055; postal orders, 2,644,089, of the total amount of 294,137,045 francs. In the international service there were forwarded 30,055,083 letters and cards, 13,829,221 circulars and samples, 69,519,813 journals, and 2,698,111 parcels.

The telegraphs in 1888 had a length of 7,115 kilometres; length of wires, 17,341 kilometres. The receipts were 3,729,246 francs and the expenses 3,148,353 francs.

Expulsion of Nihilists.—While experimenting with explosives in the neighborhood of Zürich, on March 6, 1889, two Russian students were injured by the accidental discharge of bombs, one of them, Jacob Brynstein, fatally. George Prokosieff and Marie Günzburg, active members of the Russian Terroristic party, who were associated with the dynamiters, as well as Alexander Dembsky, the one who recovered, and

ten other Russian Nihilists, most of them students in the Zürich University and Polytechnicum, were expelled from Switzerland by order of the Federal Council.

Conflict with Germany.—Police-Inspector August Wohlgenuth, of Mülhausen, in February, 1889, entered into correspondence with a German tailor named Lutz, living in Basle, and proposed to him to worm himself into the confidence of the leading Social Democrats, in order to keep the German police informed of their doings. Lutz was persuaded by two citizens of Basle to play the part of a German police spy for the purpose of discovering the machinations of the Berlin authorities, who have been known for a long time to employ spies and decoys and to instigate revolutionary plots in Switzerland. He was promised and was paid two hundred francs a month, with the expectation of liberal gratuities besides if he would conspire and agitate to good effect among the working people of Basle, Elsass-Lothringen, and Baden. Wohlgenuth instructed him to call a revolutionary assembly of workmen at Riehen. After acting his part for two months and receiving a half-dozen letters from Wohlgenuth, he invited the German police officer to meet him at Rheinfelden, informing the police of Aargau of the whole matter. They were both arrested when they met at the railroad station on Easter Sunday. Wohlgenuth was kept in jail for nine days, and was then sent under guard over the frontier. Lutz was likewise expelled. The decree of expulsion against Wohlgenuth, issued by the Federal Council on April 30, was based on a law for the banishment of foreigners who endanger the security of the Federation. The German Government complained of the international discourtesy of the Swiss authorities, accusing them of enticing an imperial official into Swiss territory in order to subject him to arrest like a common criminal. His incarceration and punishment by a public decree of expulsion was complained of as illegal because he was arrested before he could have committed any offense on Swiss soil. The Wohlgenuth incident, which indicated the determination of the Federal Government no longer to suffer the proceedings of German police spies and *agents provocateurs*, who have in recent years caused much trouble in Switzerland, was seized upon by the German Chancellor as an occasion for a vigorous diplomatic attack on the Swiss right of asylum, from which Germany, supported by Russia and Austria, has endeavored for some years to exclude Socialists and Anarchists. In a dispatch to Herr Von Bülow, German minister at Bern, Prince Bismarck said the excessive hospitality given by Switzerland to Anarchists and revolutionary Socialists compelled the German Government to maintain a special police in Switzerland to watch them, and since the Swiss police arrangements did not offer sufficient guarantees for an efficacious surveillance over proceedings threatening the internal peace of Germany, it demanded that no hindrances should be put in the way of the German secret agents. The Swiss Minister of Foreign Affairs, M. Droz, replied that Switzerland could not share the exercise of police control on her own soil with another state, considering it an attribute of sovereignty, and that the right of asylum must be

maintained within the limits imposed by the considerations of the security of Switzerland and that of other countries. He pointed out that Germans toward whom Switzerland was accused of being too hospitable had settled in Switzerland by virtue of the treaty of domicile of April 27, 1876, and could not be sent away as a preventive measure, but only after they had committed acts of a nature to compromise public safety. The agents of the German police, he said, far from aiding the Swiss Government in its efforts to combat dangerous elements, had often been the cause of disorders. The German Government replied that if the Swiss Government had enforced Article II of the treaty of settlement of 1876, which requires that Germans establishing themselves in Switzerland must furnish not only a certificate of birth, but an attestation of good character, these difficulties would never have arisen, and asserted that the Swiss Government was bound under the treaty to demand such papers. This interpretation was repelled as contrary to the spirit of the treaty. Switzerland had a right to require a certificate of good conduct, but was under no obligation to refuse admission to persons to whom the authorities of another country refused such a document, since that would subordinate the right of asylum to the dictation of foreign governments. The German Government then signified that it reserved the right to take at the frontier the measures that seemed to it necessary to protect itself against dangers that the insufficiency of the Swiss political police, the indifference or powerlessness of the Federal Government, the connivance of inferior authorities with Anarchists, the refusal to allow it to send secret agents into Swiss territory, and as a consequence of that the audacity of the subversive elements might bring to the internal peace of the empire. At this point of the discussion, when the German Chancellor hinted that, since many essential parts of the treaties on which the neutrality of Switzerland is based have fallen away, the provisions that are favorable to Switzerland can only be maintained on the condition that Switzerland fulfills the obligations that grow out of them, Russia, and subsequently Austria, came to the support of the German position,

pointing out the dangers that menaced them through the too great tolerance that anarchistic and revolutionary elements enjoyed in Swiss territory, and asserting that the neutrality enjoyed by Switzerland under the joint guarantee of the European powers implied the duty to furnish necessary safeguards against activities threatening the peace between the countries; otherwise, they would have to consider whether that neutrality is in their interest. The Swiss reply pointed out that the surveillance and repression of anarchistic and revolutionary acts was a common international obligation, and not a special duty resting on Switzerland and resulting from her neutrality, and declared that the measures to be taken concerned the internal order of the country and were not a subject for diplomatic discussion. As a sovereign state Switzerland could not allow a foreign government to prescribe police regulations.

The German custom-house authorities began to impose annoying restrictions on the passage of persons and goods across the frontier. The Federal Government decided to strengthen the political police so as to enable them better to watch foreigners and to create a Federal public prosecutor whose duty should be to direct their investigations and the actions growing out of them. On July 20 the German minister notified the termination of the treaty at the end of the stipulated period of twelve months. In a later note, Prince Bismarck dwelt on the necessity for a vigorous police supervision over foreigners, for those who now take advantage of the right of asylum to conspire against their mother-country are undeserving of its benefits. The termination of the treaty of settlement will absolve Germany of the obligation to receive back Germans who are expelled from Switzerland. Failing to intimidate Switzerland into accepting its views, the German Government expressed itself contented with the new police arrangements. A circular attacking the Federal Council for instituting political police gave the police their first occupation, and resulted in the expulsion of several German Anarchists. A number of Frenchmen long resident in Switzerland were likewise expelled on account of their political activity.

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TENNESSEE, a Southern State, admitted to the Union in 1796; area, 42,050 square miles; population, according to the last decennial census (1880), 1,542,359; capital, Nashville.

Government.—The following were the State officers during the year: Governor, Robert L. Taylor, Democrat; Secretary of State, John Allison, succeeded by Charles A. Miller; Treasurer and Insurance Commissioner, Atha Thomas, succeeded by M. F. House; Comptroller, P. P. Pickard, succeeded by J. W. Allen; Attorney-General, B. J. Lea, succeeded by G. W. Pickle; Superintendent of Public Instruction, Frank M. Smith; Commissioner of Agriculture, Statistics, and Mines, B. M. Hord; Chief Justice of the Supreme Court, Peter Turney; Associate Justices:

W. C. Folkes, W. C. Caldwell, B. L. Snodgrass, and W. H. Lurton.

Finances.—The receipts for the fiscal year ending Dec. 20 were \$1,615,204.62, and the disbursements \$1,845,137.31. Of the disbursements \$476,000 was paid on account of loans, making the actual expenses of the State \$1,369,137.31. In June the funding board negotiated a loan of \$250,000 to meet the July payment of interest on the State debt. For the past six years the State has expended over \$1,600,000 for retiring its floating debt, for new public institutions, and for other purposes, and has thereby incurred an additional debt of \$600,000.

The tax rate for State purposes was 30 cents, and for education 15 cents, on each \$100.

Legislative Session.—The forty-sixth General Assembly began its regular biennial session on Jan. 7, adjourning on April 8 to May 7, when it again met and at once dissolved. On Jan. 15 United States Senator Isham G. Harris was re-elected for the term of six years by the following vote: Senate—Harris 23, Leonidas C. Houk (Republican nominee) 10; House—Harris 73, Houk 26. In the Democratic caucus, Senator Harris was nominated on the fourth ballot, his strongest opponent being John D. C. Atkins. The following new incumbents of administrative State offices were elected: Secretary of State, Charles A. Miller; Treasurer, M. F. House; Comptroller, J. W. Allen; Attorney-General, G. W. Pickle.

Two noteworthy results of the session were a registration act and a ballot-reform law. The former requires that in all towns, cities, and civil districts having 500 polls, every voter must secure registration at least twenty days before an election. The Governor is directed to appoint three commissioners of registration for each county, each member holding office for two years. This board shall appoint two registrars for each civil district or ward, who shall examine and register such applicants as are by law qualified to vote. The ballot-reform act is applicable to all counties having a population of over 70,000 people and to cities of over 9,000 according to the census of 1880. All ballots for national, State, county, and district offices are to be printed at the expense of the counties, and for municipal elections at the expense of the cities. The chairman of the county board of commissioners of registration, who is given charge of printing and distributing the ballots, is required to print thereon the names of all regular caucus candidates nominated at least ten days before the election, and of all independent candidates, recommended by at least fifteen voters, who present their application ten days before the election. Any one who was not nominated, or did not intend to be a candidate, till within ten days of the election may print a ticket and exhibit it at the polls, in order that voters may copy the names therefrom into the blank spaces left after the names of the candidate in the official ballots; but such ticket can not be voted. The names of candidates for the same office are to be printed together, and upon the back is to be stamped the words "official ballot for," together with the name of the precinct and the fac-simile of the signature of the officer charged with the printing. The elections in each voting precinct are to be conducted by the registrars, created by the registration act, who are for this purpose called registrars of elections.

At every polling place three voting compartments for each 100 voters shall be constructed; the space containing these and the ballot-box shall be railed off, and no voter shall be allowed within 50 feet of the railing, except when admitted to prepare and cast his ballot. The voter shall then enter one of the compartments, first receiving a ballot from the registrar, who stands 10 feet within the railing, shall place a cross opposite the name of the person voted for, shall fold his ballot before leaving the compartment, so that no one can see his choice, and shall at once deposit it in the ballot-box. A penalty not less

than \$10, and not over \$100, is imposed on any one who shows his ballot or interferes in any way with another while he is preparing or casting his ballot.

A subsequent act provides that at all November elections there shall be two ballot-boxes for each voting precinct, one for State and one for national officers, to be kept in separate rooms or houses not more than 200 feet apart. Another important act of the session codifies and revises the laws relative to taxation. The features of the former law providing for assessment of a poll tax of one dollar, of a tax on real and personal estate, and of licenses on various occupations were retained, but more stringent duties were imposed on county assessors, in order to secure a full valuation of realty and a more complete assessment of personality. The county assessors, holding office for four years, are made ineligible for re-election.

The convict lease system is continued by an act authorizing the Governor to lease the Penitentiary and prisoners for six years from January, 1890, at not less than \$100,000 per annum, free of expense to the State, for the support of prisoners. The convicts may be worked anywhere in the State, subject to the supervision of the warden and of the State Board of Inspectors. Convicts under eighteen years, and those confined for the less degrading offenses, are to be kept separate from the others.

An act was passed for the suppression of "trusts."

The Sunday laws were amended so as to prohibit the sale of liquor on Sundays, except by druggists upon prescriptions.

The homestead of Andrew Jackson and 25 acres of land around it were conveyed to trustees for the benefit of the Ladies' Hermitage Association, to be held by them so long as the association shall keep them improved and preserved in a state of beauty. The remainder of the Hermitage farm of about 500 acres was conveyed to trustees for twenty-five years, to provide self-supporting homes for disabled Union and Confederate soldiers. The sum of \$10,000 was appropriated to keep the farm in order for this purpose.

A State tax of 45 cents on each \$100 was imposed for 1889 and each year thereafter, one third of which is to be used for school purposes. A tax of \$200 on wholesale liquor dealers and of \$150 to \$200 on retail dealers is imposed in addition to the regular ad valorem tax on their stock. The Western Hospital for the Insane received an appropriation of \$65,000 for its completion. Other acts of the session were as follows:

Punishing by imprisonment from one to five years any person that shoots into or at any railroad train.

Adding to the list of legal holidays the 22d of February, Good Friday, Decoration Day, Memorial Day, and all days designated for holding county, State, or national elections throughout the State, and providing that business paper falling due on such days shall be deemed to be due on the last business day preceding.

Punishing with a fine any liquor dealer who, after being forbidden by the wife, furnishes to her husband, who is an habitual drunkard, any intoxicating liquor.

Forbidding the consolidation of street-railway companies or of gas or electric-light companies, or of com-

panies formed to supply water to a city or town, except by permission of and under the limitations imposed by the municipal government of the city or town where such companies do business. The penalty for violation of this act is forfeiture of charter.

Compiling and revising the law relating to public roads.

Prohibiting the deduction of two pounds, known as scalage, from the weight of a bale of cotton.

Making women eligible to the office of county superintendent of education.

To provide for the organization of corporations for raising and dealing in poultry and eggs; also of corporations for building and conducting hospitals or sanitariums.

Authorizing railroad corporations to amend their charters so as to enable them to build branch roads.

Authorizing the formation of live-stock insurance companies.

Allowing insurance companies to insure against disabilities by disease or sickness.

Permitting a jury trial in all civil cases when either party desires it.

Giving the county courts power to permit and regulate the construction and operation of railroads on the public roads.

Declaring that Tennessee river extends from its junction with Ohio river at Paducah, Ky., to the junction of the north fork of Holston river with the Holston, at Kingsport, Tenn.

Confirming the consolidation of the Mississippi and Tennessee Railroad Company with the Chicago, St. Louis and New Orleans Railroad Company.

To prevent interference of any employer with his employes in the selection of their family physician.

Providing for a commission to fix, by agreement with the authorities of the State of Georgia, the boundary line between Dade County, Ga., and Mariou and Hamilton Counties, Tenn.

Amending and simplifying the tobacco-inspection laws.

Rearranging the boundaries of the Third, Fourth, and Fifth Congressional Districts, to equalize the population therein.

Creating a State Board of Medical Examiners, and requiring all practitioners of medicine to obtain a certificate therefrom.

Penitentiary.—In June, of this year, there were 1,445 prisoners in the Penitentiary—a larger number than ever before appeared on the State prison rolls at one time. Of this number, 583 were at the main prison, in Nashville, 99 at the farm, 123 at Coal creek, 350 at Tracy City, and 290 at Inman. There were 375 white prisoners and 1,070 colored, including 49 women, 5 of whom were white and 44 colored.

In September the proposed lease of convicts for a term of six years from Jan. 1, 1890, was put up at auction, and was bidden in by the Tennessee Coal, Iron, and Railroad Company for \$100,000 per annum, the State being relieved from expense of maintenance. This company was the only bidder, and the sum named was the lowest for which the lease could be made under the act.

Militia.—The National Guard of the State consists of 2,507 officers and men.

Agriculture.—The State Commissioner of Agriculture estimates the acreage of wheat for the year to be 1,280,815 acres, producing a crop of 9,076,356 bushels. The corn crop is estimated at 79,451,730 bushels—nearly 5,000,000 bushels less than in 1888. The cotton crop is mostly grown in the southwestern counties. The total product for the State is estimated at 159,371 bales of 465 pounds net lint each.

Cumberland River Improvement.—A mass meeting of citizens of Tennessee was held in Nashville on Oct. 21 to take such action as might best promote the improvement of Cumberland river by locks and dams. With the object of uniting the efforts of the people of Tennessee and Kentucky, an interstate convention was deemed advisable, and a convention of delegates was called to convene in Nashville on Nov. 20, to which delegates from Kentucky were invited. At this joint convention about 200 delegates were present, representing twelve counties in Tennessee and eight in Kentucky. It organized the Cumberland River Improvement Association, whose executive officers are directed to present to Congress the demands of the convention and to use all proper means to secure legislation for the improvement of navigation in the river. The development of the coal and iron deposits of the Cumberland valley is considered to be dependent upon this improvement.

TEXAS, a Southern State, admitted to the Union in 1845; area, 265,780 square miles; population, according to the last decennial census (1880), 1,591,745; capital, Austin.

Government.—The following were the State officers during the year: Governor, Lawrence S. Ross, Democrat; Lieutenant-Governor, T. B. Wheeler; Secretary of State, J. M. Moore; Treasurer, Frank R. Lubbock; Comptroller, John D. McCall; Attorney-General, James S. Hogg; Superintendent of Public Instruction, Oscar H. Cooper; Commissioner of the General Land-Office, R. M. Hall; Chief Justice of the Supreme Court, John W. Stayton; Associate Justices, Reuben R. Gaines and John L. Henry; Commissioners of Appeals, Presiding Judge, Walter Acker, Judges, W. E. Collard, Edwin M. Hobby.

Finances.—The following is a statement of the receipts and disbursements of the State treasury for the year ending Aug. 31: Balance on hand, \$1,259,126.71; receipts, \$1,519,774.90; total, \$2,778,901.61; disbursements, \$2,272,347.27; transfers adjusting accounts, \$78,143.76; total, \$2,350,491.03; balance on hand, \$428,410.58. From this balance there was a further transfer of \$31,506.90 to available school fund after Sept. 1, leaving as the actual balance to the credit of "general revenue," \$396,903.68.

The occupation taxes yielded an increase of \$42,012.39 over that of the previous year. The reduction of the tax rate on property for 1888 from 25 to 10 cents, thereby greatly diminishing the revenue, has produced the large decrease in the surplus. The valuation of taxable property in the State increased from \$681,084,904 in 1888 to \$729,175,564 in 1889. The State tax rate for 1889 was 20 cents on each \$100.

Legislative Session.—The biennial session of the Legislature began on Jan. 8 and adjourned on April 6. On Jan. 22 United States Senator Richard Coke was re-elected by the unanimous vote of both Houses. The Commission of appeals, established for the relief of the Supreme Court, which would expire on March 31, was made permanent, its members to be appointed by the Governor every two years. Provision was made for retiring such of the State bonds of Aug. 5, 1870, known as the 7-per-cent. frontier defense bonds, as are held by private individuals as soon as they become redeemable.

in 1890, the money therefor to be raised by the issue of new 5-per-cent. bonds payable in thirty years. These new bonds shall be sold to the permanent school fund. The Governor is authorized to issue such other bonds as he may see fit, and to sell them to the permanent school fund, whenever there is a balance of \$5,000 in cash in such fund. The irrigation and mining laws were revised. Railroads were authorized to provide separate accommodations for passengers of different colors. A branch insane asylum was established in southwest Texas, west of Colorado river, and \$150,000 was appropriated for land and buildings. Later in the year this asylum was located at San Antonio, on a large tract given to the State for that purpose. Two amendments to the Constitution were proposed, one authorizing the establishment of a railroad commission, the other extending the limit of county and local taxation. A bill establishing a railroad commission was vetoed. Other acts of the session were as follow :

Admitting companies or associations from other States to carry on life or casualty insurance business on the assessment plan.

To provide for the speedy and efficient enforcement of liens of mechanics, contractors, sub-contractors, builders, laborers, and material men.

Regulating the practice of pharmacy.

Defining "trusts," and providing for the punishment of corporations or persons connected with them.

Rechartering the cities of Dallas and of El Paso, and repealing the charter of East Dallas.

Incorporating the cities of Fort Worth, Paris, and Waco.

Authorizing Jewish rabbis to perform the marriage ceremony.

Revising the militia law.

Increasing the taxes on occupations, sports, and amusements.

Designating the Agricultural and Mechanical College as the beneficiary under the act of Congress establishing agricultural experiment stations.

Designating Feb. 22 as "Arbor Day."

Requiring all butchers and slaughterers to file a bond conditioned to keep a true record of all cattle purchased or slaughtered, with the marks, brands, age, weight, date of purchase, and the person from whom purchased, and also conditioned that he will have the hide and ears of such animal inspected, within five days after it is slaughtered, by some inspector or county magistrate, and that he will not purchase any slaughtered cattle, unless the hide and ears accompany the animal, with the ears, marks, or brands thereon unchanged.

Creating Coke County and Irion County out of Tom Green County.

Regulating the practice of dentistry.

Providing for the creation of a board of arbitration to settle the controversy between the United States and Texas, regarding Green County.

Education.—The number of children of school age in 1888-'89 was as follows: In the counties—white children 334,926, colored children 115,192; in cities and towns (independent districts)—white children 70,751, colored children 24,747; total—white children 405,677, colored children 139,939.

Railroads.—The following report for 1889 is made by the State Comptroller: Total mileage, 8,151.70; capital stock, \$177,454,284; cost of construction, \$346,659,473; bonds outstanding, \$233,869,422; coupons overdue, \$10,854,564.98; other indebtedness, \$18,515,226.93; total indebtedness, \$263,239,213.91; total earnings, \$28,-

207,926.96; operating expenses and repairs, \$24,834,533.24; net earnings, \$3,373,393.72.

Pensions.—For several years the State has paid annually a pension of \$150 to indigent veterans of the war for Texan independence and to the indigent widows of veterans. About 400 names were on the pension list, making the annual outlay about \$60,000. The Legislature this year amended the act so as to permit oral evidence to establish pension claims, and this change resulted in the admission of about 100 additional claimants, and in an additional outlay of about \$15,000.

The Colored Race.—The following is an extract from an address issued by a State convention of colored men, held at Waco on Aug. 20:

In some counties we are denied the free exercise of the elective franchise.

In many counties colored men are denied the right of serving on juries, though possessing the legal qualifications for jurors.

We are also unjustly discriminated against by some of the railroad companies and other public carriers of the State.

We condemn mob violence in all its forms, and we remind our white fellow-citizens there is a point where forbearance ceases to be a virtue, and while we do not advise retaliation, we feel that the continuation of lynch law will eventually lead to this.

The negroes of Texas have made commendable progress since emancipation. We now own about one million acres of land, and we pay taxes on twenty million dollars' worth of property. We have two thousand churches, two thousand Sunday-schools, two thousand benevolent associations, ten high schools, twenty-five hundred common schools, three thousand teachers, one hundred and twenty-five thousand pupils attending schools, twenty-five lawyers, one hundred merchants, five thousand mechanics, fifteen newspapers, and hundreds of farmers and stockmen.

Labor Convention.—On July 3 a State convention was held at Dallas "for the purpose of perfecting a State organization to further the eight-hour movement, and to do whatever else the convention may in its wisdom deem to be for the best interest of the wage-workers of Texas." An organization, called the "Texas Federation of Labor," was formed, and provision was made for holding annual conventions. The following resolutions embody the demands of the convention:

We favor eight hours as a working day, and demand the passage of a law so declaring.

We favor a single tax, or a tax upon land values, and the repeal of all other taxes whatsoever.

We favor the repeal of the national bank law, and all other class laws.

The only equitable solution of the transportation question is in the Government ownership of the railways, telegraphs, and telephones.

We favor the abolition of the United States Senate and all State senates, because of the corruption practiced; the abolition of the grand jury system, because it is used by designing men to crush, ostracize, and persecute in some instances those who oppose existing systems, and the supremacy of either the Democratic or Republican factions, and to the end that our votes may be counted when cast and all corruption and the damnable boodle system be obliterated.

We favor the Australian system of holding elections; the election of all officers by the direct vote of the people.

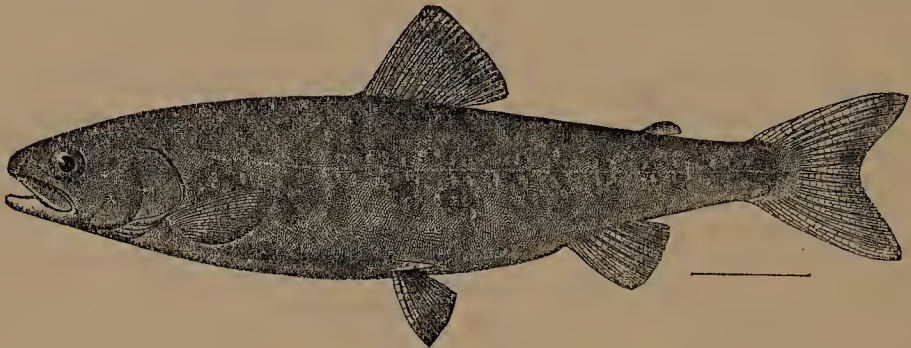
We favor all that will secure a lien on the products of labor.

TROUT, NEW SPECIES OF. Since 1880, two species of trout have been discovered in the United States—one in Sunapee Lake, N. H., and one in Colorado. Three foreign varieties have also been added to the list of our permanent *Salmonidae*—the common brown trout of Europe, the German saibling, and the Loch Leven trout from Kinross-shire, Scotland.

Sunapee Lake Trout (*Salvelinus Sunapee*).—In 1881, a strange trout appeared in Sunapee Lake, N. H., and was at once recognized by the native fishermen as distinct from the brook trout, the only species aboriginal to the Suna-

pe system. But it was not until October, 1885, when ex-Commissioner Powers demonstrated to the acting fish commissioner that the new fish were not brook trout, that specimens were sent to the Smithsonian Institution, where the Curator of Fishes pronounced the trout a *Salvelinus* of the *ogouassa* or blue-backed type, but of such enormous size that at first he did not suspect its relation to that species. Prof. Baird inclined to the same opinion, and its close connection with certain genera native to Greenland and Labrador was freely discussed. The distinguishing features of the Sunapee trout are the conspicuous development of teeth on the hyoid bone, and the absence of mottling on the back and fins. In summer the fish is silvery, and hence it is known as the white trout; but as the spawning season approaches it is metamorphosed into the most brilliant-hued of all our fresh-water fishes, the coloration varying from a dead-luster cream tint or delicate olive in the females to a dazzling

sionally the females are as highly colored as the males. The fins are markedly larger than those of the brook trout; the tail is generally square, sometimes bifurcated. Many specimens are misshapen, and the females not unfrequently fail to cast their eggs at the proper season. The Sunapee trout is known to attain a weight of seven pounds. The presence of this new trout in Sunapee Lake is variously accounted for on the following hypotheses: 1. Descent from some foreign plant, possibly from blue-backed trout introduced into Sunapee in 1878 from Maine, or from other trout of the *ogouassa* type whose eggs or fry may have become mingled with those of the land-locked salmon intended for this lake, the plants beginning in 1867. 2. Aboriginality, coupled with escape of notice for at least one hundred and fifty years, until the Hon. Ransom F. Sargent, in 1881, and ex-Commissioner Powers, in 1885, pronounced the fish a representative of a new and distinct species. Failure to attract attention before this time has been explained on theories too absurd for serious consideration. 3. Hybridism. Of late years the waters of Sunapee have been drawn so low in the autumn by mill-owners on the effluent that the various species of *Salmonidae*, native and exotic, have been forced to spawn in the open lake, ascent of brooks being impossible. Accidental conjunction between the land-locked salmon and the brook trout, or between the brook trout and the nearly related white fish (a salmonoid introduced into the lake as early as 1870, and successfully crossed with the *Salvelinus fontinalis* by Seth Green) may thus have

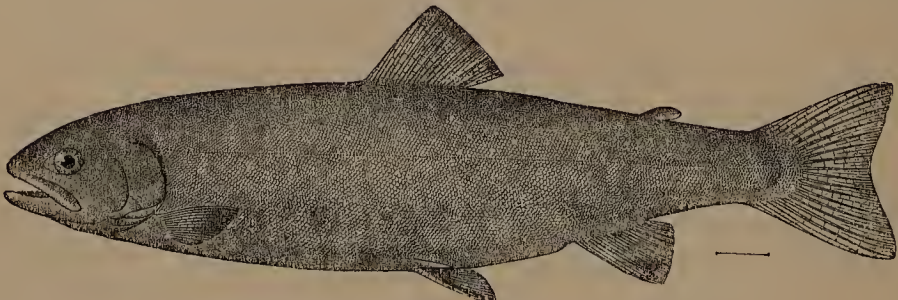


SUNAPEE LAKE TROUT. Young, $7\frac{3}{4}$ inches long.

orange in the males. The pale spots of summer now blaze out in flecks of yellow or vermillion fire, and the flashing sheen of the back deepens into a uniform steel blue, always destitute of the characteristic markings of the brook trout. Oc-

taken place, and this new and beautiful trout have been given to the world.

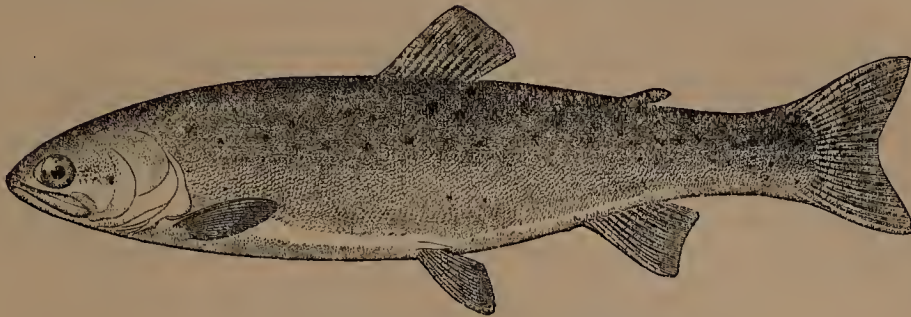
Yellow-fin and Green-back Trout of Colorado.—Two new species of trout have also been found in the basin of the upper Arkansas, nota-



SUNAPEE LAKE TROUT. Adult female, $17\frac{1}{4}$ inches long.

bly in Twin Lakes, 15 miles southwest of Leadville, Col. One of these, the "green-back trout" (*Salmo mykiss stomias*), has for many years been

stranger trout with the artificial fly. The State of New York and the United States Government are importing the Loch Leven variety largely for

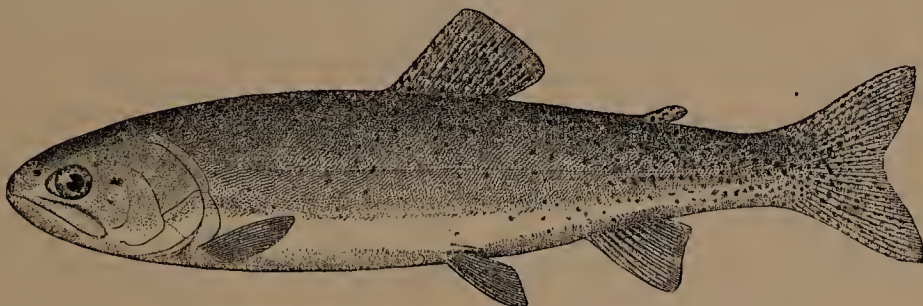


SALMO MYKISS STOMIAS. From Twin Lakes, Col.

taken in the tributaries of the Arkansas and the Platte; the other was recognized in 1889 as belonging to an independent sub-species or species by Dr. David Starr Jordan, President of Indiana University, and was named by him *Salmo mykiss Macdonaldi*, in honor of Marshall McDonald, United States Commissioner of Fisheries.

The second trout, distinguished by resident anglers as the "yellow-fin," is of a silvery-olive color, with lemon-yellow sides and golden fins.

distribution. It is recognized in Great Britain as the bravest fighter of its race, and is simply incomparable from its rise to the descending "teal and red" to the finish at the breakfast-table. The brown trout has adapted itself to some of our waters. The last varieties of foreign *Salmonidæ* selected for importation are the game sea-trout (*Salmo trutta*) of North Britain, and the Alpine trout (*Salmo lacustris*) of the deep Swiss lakes.



SALMO MYKISS MACDONALDI. From Twin Lakes, Col.

Its elongate body is profusely speckled, back of the first dorsal, with "small pepper-like spots," which are usually absent from the long, compressed head. The scales are small and regular, there are teeth on the hyoid, and the tail is moderately forked. The yellow-fin trout attains a weight of from seven to ten pounds, and spawns in spring, principally in the lake, leaving its eggs to be devoured by suckers, which swarm on the beds. Its flesh has a fine flavor, but is pale and watery, as its chief diet is fish; while the flesh of the green-back trout, which feeds on crustacea, is a brilliant red.

Imported Trout.—There have been importations of Loch Leven trout from Howietoun Fishery, Stirling, Scotland. The first purchase of this famous British salmonoid, which is peculiar to Loch Leven, Kinross-shire, was effected in June, 1886, by Prof. John D. Quackenbos, of Columbia College, who visited both the lake and Howietoun to make a special study of the fish. Prof. Quackenbos arranged for the shipment of 30,000 eyed ova to New York, received them on their arrival, and sent them to New Hampshire, where they were successfully hatched and planted in Sunapee Lake. The importer has since enjoyed the satisfaction of taking some of the

TRUST, a combination of manufacturers or producers, formed originally for the sake of carrying on business more economically, but latterly more for the purpose of shutting off opposition altogether, and so capable of great abuse.

In New York.—Abuses of this nature appeared to reach their danger limit sooner in New York than in any other State on account of its great commercial importance. They meet with opposition in the Legislature and are often stopped by legislative enactment before they have had an opportunity to develop in other States. Hence an outline of the way that New York deals with such matters will usually stand for the whole country, although other States have not been inactive. The Legislature of New York early in 1888 had its attention attracted to the abuse of trusts, and it was resolved to investigate certain combinations covering sugar, milk, rubber, cotton, envelopes, elevators, oil-cloths, oil, meat, glass, and furniture. Especial attention was paid to the sugar, milk, cotton-seed, and oil trusts, on account of their extensive operations and the aggregate of capital they represented. As a reason for undertaking the investigation it was declared that the effect of all such combinations upon the public was this:

The aggregation of capital, the power of controlling the manufacture and output of various necessary commodities, the acquisition or destruction of competitive properties, all led to the final and conclusive purposes of annihilating competition and enabling the industries represented in the combination to fix the price at which they would purchase the raw material from the producer and at which they would sell the product to the consumer. The reports made to the Legislature covered many hundred pages of testimony and conclusions, from which the following outline is condensed:

Sugar.—The Sugar Trust, with a capital represented by stock certificates amounting to \$45,000,000, came into existence by virtue of an agreement dated on or about Oct. 24, 1887, by and between the stockholders of eight sugar refineries, corporations of New York and other States on the eastern coast of the United States (one, however, was in St. Louis), by which they agreed to surrender the stock of their several corporations to certain persons as trustees, called "The Sugar Refineries Company," who were to hold the stock for the benefit of all, and in exchange for such stock so surrendered the several stockholders received stock certificates in the Sugar Refineries Company in amount at least four times the nominal value of the stock surrendered; that this stock of the several corporations in the hands of the trustees, called the Sugar Refineries Company, gave them the absolute control of all the refineries in the combination and enabled the Trust to manage all the refineries exclusively for the profit of all and without any competition between them; that by such surrender the several corporations became the mere satellites of the Trust (this being the Sugar Refineries Company), and all their affairs were dominated from the central body; that a system of reports containing statements of raw material purchased, refined sugar on hand, the daily output of each refinery, together with the funds in the treasury, was established between the Trust and its vassal corporations; that the Sugar Refineries Company recommended when a refinery shall shut down and when it shall run, but whether at work or idle it received its share of the general earnings; that the Trust exercised absolute control of all the industry, and in its discretion took in new corporations, which surrendered their stock at a valuation agreed upon and in return received certificates of stock in the Sugar Refineries Company, for which reception of new corporations the original trust agreement made full provision.

Cotton-Seed Oil.—In regard to the Cotton-Seed Oil Trust, it was declared that this combination embraced about seventy corporations operating mills and refineries in various States of the Union, engaged in the manufacture of oil from cotton seed; that the oil is used as an article of commerce and to adulterate or improve certain animal fats; that it is an industry of recent years and has made from the cotton seed, which formerly was of little or no value, an oil of great utility, the value of its product from May, 1886, to May, 1887, being stated at \$24,000,000 (see *COTTON-SEED PRODUCERS*, in this volume); that this Trust has been in operation for several years and has made one dividend of 1 per cent. on its stock certificates; that the manner of its formation, its management and general effect upon public interests, as well as its relation to and control of the corporations whose stock is held by its nine trustees, are much the same as in the case of the Sugar Trust; that the operations of the corporations forming the Trust are carried on mostly in distant States, but the business of the Trust, other than that of manufacturing, is done in the city of New York, where it has a general office; that the agreement under which this combination was formed also makes provision for taking into the syndicate new competitors upon terms similar in principle to that which originated the combination, and that the

avowed object of this Trust is to get and keep control of the manufacture and sale of cotton-seed oil, and to that end it buys up, destroys, or assimilates all individual industries of its own kind within its reach.

Milk.—Of the Milk Trust it was said that it can hardly be called a trust, but its object is to destroy competition and it is a monopoly of the worst sort, and that it may seem a small affair when compared with the sugar, cotton-seed, and oil monopolies; but when it is borne in mind that the "milkman who brings the daily portion of milk to him who dwells in city or town represents a commerce of vast proportions almost equal in this country in its aggregate value to the whole sum of our foreign importations," this will be considered a subject worthy of attention. The middlemen who have it in control wrest it from its original purpose and use it, by assuming through its authority to fix the price of milk, to oblige the farmer to sell his milk at two and three cents a quart to them (the members of the Milk Exchange limited), and they are left free to charge the consumer in the city seven or eight cents, and at times ten cents a quart, in their discretion.

Oil.—More particular attention was paid to the Standard Oil Trust. The report said this was organized in 1882 by about fifty persons who were engaged in the production, refining, or carriage of the commodity known as "coal or kerosene oil"; that they entered into an agreement by which they, holding controlling interests in certain corporations, joint stock associations, and partnerships, placed their stock in the hands of nine trustees, who then became what has since been known as "The Standard Oil Trust," having complete supremacy over all the industries whose stock it held; that the Trust instrument also made provision for taking new corporations into the combination at a valuation to be agreed upon, for which the stock certificates of the Trust were to be issued; that the agreement also made provision for the formation of corporations in different States, to be called the Standard Oil Company of such several States, the stock of which was to be held and its affairs controlled by the same governing body, the nine trustees; that upon the completion of the agreement and on the day of the first meeting of the trustees they caused the value of the properties of the several corporations, known as the Standard Oil Company of Ohio, whose stock was in control of the Trust, to be fixed at \$70,000,000, its net earnings of the six years preceding being annually \$13,333,333 per cent. on that sum; that this amount was afterward increased, in accordance with a provision of the trust agreement, to \$90,000,000, and the actual value of property in the Trust control at the present time is not less than \$148,000,000; that this sum in the hands of nine men, energetic, intelligent, and aggressive (and the trustees themselves, as has been said, own a majority of the stock of the Trust, which absolutely controls the \$148,000,000), is one of the most active and possibly the most formidable moneyed power on this continent; that its influence reaches into every State and is felt in remote villages and the product of its refineries seeks a market in almost every seaport on the globe; and that, when it is remembered that all this vast wealth is the growth of about twenty years, that this property has more than doubled in value in six years, and that with this increase the Trust has made aggregate dividends during that period of over \$50,000,000, the people may well look with apprehension at such rapid development and centralization of wealth, wholly independent of legal control, and anxiously seek out means to modify, if not to prevent, the natural consequences of the device producing it, a device of late invention, namely, the aggregation of great corporations into partnerships with unbounded resources and a field of operations quite as extended as its resources.

In the conclusions of the reports it was said that the promoters of the Standard Oil, Sugar, and Cotton-Seed Oil trusts all argue that their

combinations do not necessarily have the effect of raising the price of the manufactured article to the consumer nor of lowering the price of the raw product to the producer, but that the high price paid to the producer and the low price charged to the consumer depends to a great extent upon the plant controlled by the manufacturer and upon the capital at his command, and that the larger the capital and the more extended the field of its industrial operations the higher will be the price paid to the producer of the raw material and the lower the price charged the consumer of the refined product. The opinion was further expressed that, as applied to the Sugar Trust, it appears the price of sugar has largely advanced since the Trust's formation, and no satisfactory explanation was given of the cause of such advance aside from the combination of 85 per cent. of the sugar refiners of the Atlantic coast to put up prices. As applied to the Cotton-Seed Oil Trust, it appeared that cotton-seed oil had advanced in price and might at any time be further advanced by the will of the Trust, which in effect holds the control of almost the entire industry of the country. Tried by this test the Standard Oil monopoly has a better case apparently, for the price of coal or kerosene oil has diminished steadily since the formation of that trust, and it is claimed to be lower in price now than ever before. It is a well-known fact that since the discovery of coal and kerosene oil there has been constant diminution in the price to the consumer and producer; but such diminution in price to the consumer is not due to the influence of the Standard Oil Company or Trust; it is attributable to causes wholly independent of it, to wit, the constantly widening field of oil production and the ever-increasing volume of crude oil put upon the market. Thirty years ago, says a standard author, a small vial of kerosene, or Seneca oil as it was called, was sold for \$2. To-day the crude oil is sold by the barrel at the well for 63 cents, and has been sold as low as 30 cents a barrel, so that the Standard Oil Company, and latterly the Standard Oil Trust, have been obliged to serve their own purpose, having become possessed of the storage, transportation, and manufacturing facilities of the country, to make the greatest possible market for a commodity of which there seemed a constantly increasing supply, and to that end it was for their interest, however they dealt with their competitors, to make the price to the consumer so reasonable that all could buy. What the Trust's course would have been if instead of increased production it had been required to deal with the problem of a constantly diminishing or stationary volume of oil is only a subject for speculation.

In recent years the people have seen the mine, the railroad, the telegraph, and the telephone, under corporate management, yield great returns to their projectors. Colossal fortunes hastily accumulated are always abhorrent to the people, and, even in the hands of private individuals, are often considered a menace to good government. The people of this State have become alarmed at the constantly growing power of railroad, pipe-line, telegraph, and other corporations, and the ease and boldness with which the great and powerful destroys or assimilates its weaker competitive

neighbor, common carrier, or manufacturer, has become the scandal of the age. The end, if not the purpose, of every combination, is to destroy competition and leave the people subject to the rule of a monopoly.

In favor of the trusts, it was shown in the testimony that much of the Standard Oil prosperity was owing to certain patents which the Trust owned; and that nowhere else in the world was furnished so good and so cheap a light. It also transpired that in 1830 the average amount of capital invested in cotton mills was \$50,000, and to-day this has increased to \$280,000. The price of cotton cloth has decreased from seventeen cents to five cents a yard, while average wages have increased from \$2.55 to \$5.40 a week.

Proposed Remedies.—The Legislature considered three measures intended to remedy some of the alleged evils. The first made it unlawful for any individual, company, or corporation to enter into any combination with any other individual, etc., by which the manufacture or production of any article of commerce, use, or consumption, shall be agreed to be prevented, restricted, or diminished, or by which the price of any article or commodity of merchandise or commerce, or of any article or commodity intended for sale, use, or consumption, shall be fixed at any standard or figure, or by which its price to the public shall be in any manner controlled, regulated, or established. It was also made unlawful for individuals, etc., to bind themselves not to manufacture or produce any article of commerce, use, or consumption, or not to sell or dispose of any article, etc., below a common standard or figure; or to sell at certain prices so as to prevent competition. It was further proposed that such individuals, etc., shall not maintain, through the creation of trusts, any such combination for the purpose of preventing competition. Violation of these provisions shall make void any contract, shall be the plea in any defense to any suit, shall lead to the forfeiture of corporate franchises by companies chartered in this State, and shall work the vacation of contracts entered into by corporations not of this State. Conviction for violation of this law was to be followed by a fine of \$5,000, or imprisonment for two years, or both. The second proposed law prohibited any trusts, or other association of persons, from controlling or attempting to control, or combining to raise or withhold from the people, trade, or the markets, any of the products for food or the necessities of life, or any article of food, fuel, or necessities of life. The third proposition, supposed to have been favored by the investigating committees, provided that it shall not be lawful for any individual, company, or corporation to enter into any combination, contract, or agreement, express or implied, within this State, or knowingly to execute, aid, or assist in the execution of any contract or agreement made within or without the State, the intent, purpose, and effect of which shall be to limit, lessen, or hinder the production, manufacture, sale, or transit, or fix or increase the price to the public, of any of the following commodities, to wit: Milk, bread, meat, flour, sugar, coffee, tea, coal, wood, oil, glass; or of any commodity known as a necessity of life. But the provisions of this section shall not apply to combinations, contracts, or agreements made

by and between natural persons actually engaged in the production of any such commodity, so far as the agreements may relate to the amount of such commodity actually produced by them. It shall not be lawful for any corporation, or for the directors or stockholders of any corporation, to enter into any combination, contract, or agreement with any person or persons, corporation or corporations, or with any stockholder or director thereof, the purpose or effect of which combination, contract, or agreement shall be to place the management or control of such corporation or corporations in the hands of any trustee or trustees, with the intent to limit or fix the price or diminish the production or competition in the sale of any article of commerce, use, or consumption, or to prevent, restrict, or diminish the manufacture or output of any such article. Any corporation that shall violate any of the provisions of this act shall forfeit its corporate franchises, and its corporate existence shall immediately cease and determine. Every individual, or stockholder, or director of any corporation who shall violate any of such provisions shall be guilty of a misdemeanor, and every agreement, contract, or combination herein declared unlawful shall be absolutely void. But this act shall not apply to any contract or agreement made between partners in reference to the business of their partnership. None of these bills was passed.

The Legislature of 1889 made a supplementary investigation to that of 1888; but only two bills were introduced, and no laws were enacted. The opinion of those who investigated was that trusts must be dealt with by the several States, because the power of the Congress of the United States over them is so limited as to render of little value any law that it may pass to prevent or control trusts in the States. President Harrison declared, in his message to Congress in December, 1889, that trusts in the nature of conspiracies should be made the subject of prohibitory and even penal legislation.

Without waiting for the enactment of new laws, the Attorney-General of the State of New York, in October, 1888, was granted leave to bring suit against the Havemeyers & Elder Sugar Refining Company for the forfeiture of its charter, on the ground that it had become a party to what was known as the Sugar Trust—a "combination which by this means has been enabled to prevent competition and to increase the price of sugar, on the ground that it has closed and dismantled several refineries, and thrown out of employment large numbers of men; that the combination is an illegal monopoly and a criminal conspiracy under the laws of the State of New York, and is oppressive to the people and detrimental to the welfare of the State of New York and of the United States." Early in 1889 Judge George C. Barrett, in a special term of the Supreme Court, decided against the Sugar Trust. This decision was sustained, in November of the same year, by a general term of the same court. The author of the last decision said, in his opinion, that such an association, "having for its object the removal of competition and the advance of the price of the necessities of life, is subject to the condemnation of the law, by which it is denounced as a criminal enterprise." The decision also declared that the Sugar Trust was il-

legal; that the North River Sugar Refining Company should forfeit its property; and that a receiver should be placed in charge of it. The Cotton-seed Oil Trust, older than the Sugar Trust, and believed to have a certificate capital of about \$42,000,000, anticipated this decision by taking steps to abandon the trust plan.

In Other States.—The last Legislature of Missouri passed an anti-trust law of the severest description, requiring every corporation doing business within the State to file an affidavit of the managers, declaring that it is a partner in no combination to restrict competition or to affect prices. The Secretary of State sent out letters of inquiry to the various corporations, and the charters of about 700 trusts doing business in the State were revoked in November, 1889, because they did not comply with this law. In 1888 a court in California decided that contracts made in pursuance of the trust policy can not be enforced. A new law in Texas is aimed at certain combinations, but more particularly against the Cotton-seed Oil Trust. In November, 1889, the Supreme Court of Illinois reversed the finding of the lower courts in the *quo warranto* proceedings to dissolve the Chicago Gas Trust. The lower court virtually held that the Trust was not a monopoly in the meaning of the law. The Supreme Court held that all its acts looking to a control of the capital stock of the various gas companies in Chicago were for the purpose of stifling competition, and were null and void.

In spite of all these decisions and drawbacks, the work of organizing trusts went on. In June, 1889, the United Glass Company was incorporated at Albany, N. Y., with the object of forming one company which shall own or control all glass manufactories in the country. It already controls nearly all in New York, some in Ohio, and several in Pennsylvania. The organizers have factories run by natural gas in Pennsylvania and Ohio. In September a scheme was devised in Chicago to combine all the railroads of the country into an arrangement to control the rate-making power for the whole territory between the Atlantic sea-board and Missouri river. Another plan was devised for the lines extending from Missouri river to the Pacific Ocean. The Federal Steel Company was organized in Cleveland, in November, 1889, as a consolidation of all the barbed-wire mills in the country, under a charter from Illinois and with a capital of \$12,000,000. A Twine Trust was organized in 1888, in one of the Western States; but the farmers of Chicago have managed to substitute straw for twine in binding, and thus free themselves from the combination.

In Europe.—The tendency toward trusts is not confined to the United States. An authority in Germany declares that if things continue as they have been going on of late, there will soon be no more private firms in Germany; and that this state of affairs is in the highest degree unsound, and must sooner or later lead to a catastrophe. It is further declared by the same authority, in reference to that country, that "twenty years hence the majority of the businesses and enterprises that have lately been turned into companies will be utterly worthless, and will have vanished from the earth; and those of the public who are allured by meretrici-

cious prospectuses into investing will lose their money. The profits in connection with such transformations are only obtained by the lawyers, accountants, promoters, and printers."

In Ancient Times.—Trusts and monopolies seem to have existed in all ages. In 473 A. D. the Emperor Zeno issued an edict directed to the pretorian prefect of Constantinople (Code IV, 59), as follows:

We command that no one may presume to exercise a monopoly of any kind of clothing, or of fish, or of any other thing serving for food, or for any other use, whatever its nature may be, either of his own authority or under a rescript of an emperor already procured, or that may hereafter be procured, or under an imperial decree, or under a rescript signed by our Majesty; nor may any persons combine or agree in unlawful meetings that different kinds of merchandise may not be sold at a less price than they may have agreed upon among themselves. Workmen and contractors for buildings, and all who practice other professions, and contractors for baths are entirely prohibited from agreeing together that no one may complete a work contracted for by another, or that a person may prevent one who has contracted for a work from finishing it. Full liberty is given to any one to finish a work begun and abandoned by another, without apprehension of loss, and to denounce all acts of this kind without cost. And if any one shall presume to practice a monopoly, let his property be forfeited, and himself condemned to perpetual exile. And in regard to the principals of other professions, if they shall venture in the future to fix a price upon their merchandise, and to bind themselves by agreements not to sell at a lower price, let them be condemned to pay forty pounds of gold. Your court shall be condemned to pay fifty pounds of gold, if it shall happen, through avarice, negligence, or any other misconduct, that the provisions of this salutary constitution for the prohibition of monopolies and agreements among the different bodies of merchants shall not be carried into effect.

It seems to be conceded that contracts in restraint of trade are void as against public policy; that the power of the state to punish crime is indisputable; that a combination to buy an article of merchandise and force the payment of exorbitant prices is a criminal conspiracy; that in the exercise of its police power the state restricts the right to contract, and to prevent extortion by limiting the interest upon money; and that the state has already legislated for the suppression of combinations tending to monopoly and the enhancement of prices, and the validity of its enactments was never challenged. There is no doubt that much of the power gained by combinations has been abused; but, on the other hand, it must be remembered that a trust or combination of manufacturers or business men is not always formed for the purpose of fleecing the public, but sometimes to protect those engaged in any particular business or manufacture from the more unscrupulous members of that business or manufacture. The result for the public may be good, because uniformity of quality in the work done or the article furnished, as well as a uniformity of prices, will be established. A careful analysis of the sources from which arise the complaints against trusts shows that many of them do not come from the public as a whole, but from that portion of the public which desires to compete with the members of the trust.

TURKEY, an empire in eastern Europe and western Asia. The will of the Sultan is absolute, unless it conflicts with the precepts of the Koran. The succession to the throne belongs to the oldest prince of the house of Osman. The Government is exercised under the Sultan by the Sheikh-ul-Islam in religious and judicial, and by the Grand Vizier in civil affairs. The organization of the Government is semi-military. The functionaries bearing the title of pasha are the viziers and the mutessarifs, or governors of provinces, in the civil government, and in the army the muchirs, feriks, and livas, corresponding in rank to marshal, major-general, and brigadier-general. The Sheikh-ul-Islam in 1889 was Omer Lufti Effendi. The Grand Vizier was Kiamil Pasha. There is a Council of State, which was composed of the following ministers: Aarifi Pasha, President; Said Pasha, Minister of Foreign Affairs; Ali Saib Pasha, Minister of War; Hassan Pasha, Minister of Marine; Munir Pasha, Minister of the Interior; Djeydet Pasha, Minister of Justice; Zihni Pasha, Minister of Public Works; Agob Pasha, Minister of Finance; Mustapha Pasha, Minister of Evkafs.

Area and Population.—The area in Europe under the direct rule of the Sultan is 165,438 square kilometres, with 5,575,025 inhabitants, and in Asia 1,890,000 square kilometres, with 16,227,351 inhabitants. A commercial depression in Syria that has lasted several years caused a wholesale emigration of the Christians of the Lebanon, of whom about 25,000 sought homes in the United States in 1889.

Finances.—There have been no official financial reports since 1884. The receipts of the Government for the year ending March 11, 1888, were estimated at 1,750,000,000 piasters, equal to \$77,000,000. For 1888-'89 the revenue was estimated at 1,850,000,000 and the expenditure at 2,140,000,000 piasters. New regulations for the recovery of tithes had an unfavorable effect on the finances, and the general impoverishment of the people defeats all calculations of the probable revenue. For 1889-'90 a deficit of 170,000,000 piasters was expected, which it was proposed to meet by reducing the expenses of the War Department to 5,500,000 liras of 100 piasters, of the Ordnance Department to 800,000 liras, of the Navy to 600,000 liras, and by economies of 5 per cent. in the other ministries. A loan of 1,000,000 liras was lately raised in Germany and 1,000,000 liras was obtained from Baron Hirsch for railroad concessions. The financial dispute with Baron Hirsch was settled in February, 1889, by the award of Prof. Gneist. France and Russia have protested against the new regulation subjecting foreigners to the license tax. On the demand of the Russian Government a part of the Hirsch award was applied to the payment of an installment of the war indemnity.

The Army.—Service is obligatory for all, but at the end of five months of active service the soldier can purchase immunity for the remainder of his term in the Nizam, or permanent army. The active troops in 1889 numbered about 12,000 officers and 170,000 rank and file, with 3,000 horses, 1,188 field guns, and 2,374 fortress guns. A reduction of the standing army to 100,000 men was decreed in September, 1889. The number of reserve troops on leave was about 27,000; the Fes-

tik seni, or depot troops, who serve from six to nine months, 37,500; the Redifs, organized in 96 regiments of 4 battalions, 590,000; the Mustahfiz, 262,000 men. The army available for service in Europe in case of war is estimated at from 800,000 to 1,000,000 men.

The Navy.—The ironclad navy, which has been much weakened by the sale of some of the best vessels, consisted in 1888 of 7 frigates and 8 corvettes, besides two corvettes that were not complete. There were in that year 12 torpedo boats, of which 2 were submarine boats of the Nordenfeldt pattern.

Commerce.—The imports and exports in 1887-'88 were returned as in the following table, giving in Turkish piasters (1 piaster = 4.4 cents) the trade with the principal countries:

COUNTRIES.	Imports.	Exports.
Great Britain	851,812,000	354,444,000
France	242,483,000	420,701,000
Austria-Hungary	384,771,000	99,314,000
Russia	226,155,000	28,910,000
Greece	37,789,000	59,108,000
Egypt	1,770,000	87,765,000
Italy	48,977,000	33,461,000
Persia	53,403,000	1,206,000
Bulgaria	50,974,000	2,292,000
Belgium	42,913,000	203,000
Roumania	25,903,000	13,094,000
United States	15,596,000	12,751,000
Other countries	28,042,000	12,664,000
Total	2,010,545,000	1,128,913,000

The exports of tobacco, not included in these figures, amounted to about 52,000,000 piasters. The other principal exports were raisins, of the value of 172,344,897 piasters; raw silk, 84,089,527 piasters; wool, 57,318,083 piasters; mohair, 49,798,239 piasters; coffee, 48,221,984 piasters; valonia, 46,111,576 piasters; wheat, 43,902,473 piasters; opium, 42,393,750 piasters; cocoons, 39,210,084 piasters; skins, 38,436,893 piasters; olive oil, 36,226,247 piasters; cotton, 31,140,790 piasters; figs, 30,391,137 piasters; wine, 28,574,682 piasters; dates, 21,270,173 piasters; carpets, 16,380,083 piasters; confectionery, 12,889,750 piasters; soap, 10,421,349 piasters; sesame, 8,886,525 piasters; nuts, 7,591,280 piasters; gum tragacanth, 7,315,908 piasters.

Railroads.—The railroads in operation in September, 1889, had a total length of 963 kilometres in European Turkey, and 658 kilometres in Asia Minor. The Asiatic lines comprised 462 kilometres in the neighborhood of Smyrna, 91 kilometres between Scutari and Ismid, 38 kilometres connecting Modania with Broussa, and the line of 67 kilometres from Mersina to Tarsus. The line under construction from Ismid to Angora will have a length of 467 kilometres. The Ismid line, built by English and French contractors, was sold to a German company that has undertaken to complete it, and on Jan. 8, 1889, it was seized by the Government and turned over to the purchasers.

Insurrection in Crete.—Since the convention of Chaleppa and the Berlin Treaty secured to the Cretans a large measure of self-government, they have not had the grounds for complaining of Mohammedan oppression that gave rise to the great rebellion of 1866-'69. Nevertheless, they found fault with the veto power reserved to the Porte over the acts of the Assembly,

and with the application of the greater part of the revenues of the island by the Central Government to the gendarmerie and other objects defined in the organic law, and asserted that the favor of the Government gave to the Mohammedans an undue share of influence in the legislature and administration. Out of an estimated population of 200,000, only 40,000 are Mussulmans. These are identical in race with the Christian majority. Before the last election the Conservatives had the majority of seats in the Cretan Assembly. Then the Liberals came into power, and to please the majority the Governor, Nikolaki Sartinsky Pasha, displaced the officials who had been appointed to please the other party. The minority charged him with conniving in the falsification of election returns, and attributed to his misgovernment the recurring deficit and the increasing poverty of the people, and endeavored to bring about his dismissal, just as by similar attacks the same party had caused Photiades Pasha and two other governors to be removed. Nikolaki Pasha, who was president of the Assembly by right of his office, gave no heed to the protests of the minority against his partiality. At last Andreas Kriaris, deputy for Selino, offered a resolution in the Chamber in favor of union with Greece. The Governor pronounced the motion unconstitutional, yet he allowed it to come to a vote, and it was rejected by only a small majority. Thereupon Kriaris and four of his colleagues resigned their seats, went into the provinces, and incited the farmers to refuse to pay tithes and taxes, and to work for the eventual union of the island with the Greek mother country by force of arms. Insurgent committees were speedily formed. The Russian consul in Kanea encouraged the movement; but Greece from the beginning maintained a neutral and correct attitude. Mahmoud Djeladdin Pasha was sent to Crete as Turkish special commissioner, with power to make concessions. His mission failed, and then Riza Pasha was appointed temporary governor, and Turkish troops were ordered to the island. One of the first overt acts of the insurgents was to murder five unarmed soldiers in the environs of Kanea. A bloody faction fight occurred in the village of Kalios. A band of 50 rebels robbed the treasury of the Kydonia district and set fire to the town. The Mussulman inhabitants were warned to leave the district of Milopotamo, and their property was stolen after they had gone. Fort Aya was attacked, but the assailants were repelled. The insurgents fell upon Mussulman villages in the neighborhood of Erminos, and burned the village of Galata. The Mohammedan farmers fled in great numbers to the towns. In some places they stood their ground and retaliated. Negroes and other Mohammedan desperadoes dwelling in the chief towns plundered Christians. During the disturbances 57 churches and a larger number of mosques were destroyed. In the early part of the movement, before it developed into an agitation for Greek annexation, the Mussulmans, like the Christians, were divided between the two parties. The attacks on the Mussulmans began only after the two political factions had many fierce encounters in different parts of the island. When the revolutionary movement became uppermost the politicians of the majority, finding themselves

deserted by the people, joined their former enemies. The Greek Government sent out a circular letter on Aug. 5, in which acts of violence against Christians were laid to the charge of the Mohammedans of Crete, and the Turkish Government was blamed for its apathy, which would render it impossible for the Greek Government to withstand a popular national movement in favor of the annexation of Crete in the event of bloodshed. The fear of the intervention of the great powers restrained the Sultan from putting down the disturbances by military force. But, while Russia and France were not averse to unsettling the *status quo*, the central powers and Great Britain urged the Turkish Government to repress the revolutionary movement with a firm hand. Shakir Pasha, who for several years had been the Turkish ambassador at St. Petersburg, was appointed civil and military governor of Crete, and forces were dispatched to the island. The garrison was increased to 30,000 men. The anarchy and violence prevailing in the province drove many of the Mussulmans away to other islands, and impelled Greeks to emigrate to the Greek mainland. A few days before the arrival of Shakir a large Greek village was burned near Candia, in retaliation for the destruction of Mussulman villages. Further havoc was stopped by the intervention of the military. After his arrival, Shakir Pasha proclaimed martial law on Aug. 14. He entered into negotiations with the insurgent leaders, but broke them off when they presumed to treat with him as belligerents, and obtained permission from the Sultan, who was still reluctant to authorize coercion, to apply military measures. The troops occupied the principal strategic points on the island. The mass of the malcontents returned to their peaceful vocations on the assurance of amnesty, and the insurgent bands were driven into the hills. The Christians of the city of Kanea had nearly all fled in panic, while the place was filled with 8,000 Mohammedan refugees from the country. This place and others in the western part of the island were inclosed in a military cordon, and the fanatical Moslem inhabitants were disarmed. Andreas Kakuris, with the chief body of rebels, retired to the mountains near Sphakia. On Sept. 10 Shakir Pasha sent against him four battalions of infantry and six mountain guns. The insurgents withdrew to the plateau of Omalo after a bloodless fight near Lakos, and were surrounded by the troops of Djavad Pasha, increased to eight battalions. The Turkish war-ships patrolled the coast, but did not molest a Greek schooner that hovered near for several days, on which Kakuris, Mavrojeni, Nikolaos Suridis, the four majors, and all the other rebel officers, made their escape, having been allowed to slip through the cordon. Their followers gave themselves up, and were driven with blows to the already overcrowded prisons. The members of the revolutionary committees were likewise suffered to escape to Greece. On Nov. 22 the Sultan signed a general amnesty, excluding the leaders of the insurrection and persons guilty of murder, arson, and robbery. This was followed by a firman which altered the Constitution and curtailed the privileges of the Cretans. The changes were promulgated without previous consultation with the great powers of Europe.

The Armenian Question.—In a special article of the Treaty of Berlin the Sublime Porte promised to accord to the Christians of Armenia the same guarantees of religious independence and personal security that are enjoyed by the Christian inhabitants of the European provinces of the empire. This promise of reform and the annexation of a part of Armenia to Russia furnished a lever for a movement to restore the national independence of Armenia, which the Turkish authorities have attempted to crush out. The Nationalist agitation in turn gave the pretext for acts of tyranny on the part of the local officials and for the oppression of the Christians by the Kurds, Circassians, and other Mussulman inhabitants of the ancient kingdom. The English Government made it its special task to urge the Porte to grant justice to the Armenians, although, as Sir James Fergusson explained in June, 1889, in answer to a question, the Berlin Treaty does not authorize any power without the consent of the consignatories to intervene in the internal affairs of Turkey. The Porte denied that an exceptional state of affairs existed, and yet dismissed the Governor of Bitlis and sent a judicial commission to make an investigation. The Kurdish nomads sometimes escape retribution for their misdeeds on Turkish soil by crossing over into Persian and Russian territory, and consequently the Turks attributed some of the outrages complained of to raiders from Persia. This plea did not absolve the Turkish authorities from responsibility for outrages that were permitted in Mush and Diarbekir. Specific charges were made against Moussa Bey, an influential Kurdish chief. He was accused of having, in March, with his brother Jezzo and a band of retainers, abducted a girl named Gulizar, after shooting her father; of having tortured a Christian with red-hot irons at Bitlis; and of having, with his band of brigands, on April 16, murdered the Christian Hagop and his family and ravished women in the village of Dabavank. A Kurdish army was said to have surrounded and threatened to exterminate the Nestorian Christians of Van in 1888, and a village was reported to have been consumed with all its inhabitants, who were not allowed to escape. The Turkish Government said that the acts of revolutionary committees in Van rendered necessary extraordinary political and military precautions. Moussa Bey was ordered to come to Constantinople to confront his accusers. There 47 witnesses appeared against him in the autumn. In regard to Gulizar, he asserted that she had embraced the Mohammedan religion in order to marry his brother, but that the magistrate had refused to wed them, and had restored the girl to the custody of her mother because she was under age. The trial resulted in the acquittal of the Kurdish chief on Dec. 2.

The Porte, in March, notified the Armenian patriarch that instruction in Ottoman history must be made obligatory in Armenian schools, and that the study of Armenian national history is prohibited. The patriarch replied that it would be impossible for him to carry out the command of the Turkish Government, as the Armenians have maintained their national traditions and character through centuries of hardships and vicissitudes.

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UNITARIANS. The American Unitarian Association presented, in its report to the National Conference, a review of the growth of the Unitarian churches and their enterprises during the twenty-five years since the first meeting of the National Conference was held. The number of churches had increased from less than 250 to nearly 400; the distribution of tracts from 15,000 copies to twenty times that number; the contributions for all forms of missionary work from \$6,000 to more than \$60,000. A commodious building had been provided for purposes of publication. The number of churches between the Alleghenies and the Rocky mountains had grown from 14 to 90; of those on the Pacific coast from 1 to 18; and 63 new societies had come into being in New England and the Middle States.

National Conference.—The National Conference of the Unitarian and other Christian churches met in Philadelphia, Pa., Oct. 28. Mr. Justice Samuel F. Miller presided. The report of the council contained a paragraph on "denominational schools," in which the position of the Unitarian churches was defined as that of insisting upon the deliverance of all schools from sectarian influence, and their establishment "upon the scientific method—which means the best actual knowledge attainable in every department," and recommending that while certain specified schools already nominally in the Unitarian faith should be fostered and encouraged, "it would be in harmony with the desire to put the merits of a wise instruction in the foreground, and as we have objected to sectarian influences in education, to put away denominational distinctions as much as possible, and to make them so good that parents must patronize them because there their children can find the best mental training." The Committee on Schools and Colleges had proposed as a test of the non-sectarianism of an institution, the question whether it is willing to admit a Unitarian on its board of instruction. Only half of the universities of the country, it asserted, which are not State institutions would bear the test. The Conference resolved that being satisfied with the success of non-sectarian education in the State universities and in the public schools, it expressed the wish "that the secondary schools, academies, and colleges, might everywhere accept the principle of freedom from dogmatic restraints." A proposition from the senate and faculty of the University of California inviting the several denominations to establish their training schools near the university and extending certain privileges of the institution to their students was accepted. The proposed endowment of a James Freeman Clarke professorship in the Meadville Theological School was approved. The importance of sustaining and assisting the Sunday-schools, Sunday-school societies, and Sunday-school unions, was urged upon the churches and church members. The Conference was attended by 432 delegates.

The meeting of the Women's Auxiliary Conference was held in connection with that of the National Conference. Its principal business per-

tained to the discussion of the constitution of a new national organization, which had been brought forward by a committee appointed in 1888. A large majority vote was recorded in favor of the paper, but some amendments having been presented and approved, and some churches not being represented in the vote, it was determined that the final vote should not be counted till January, 1890, that the new constitution should not go into effect till the autumn of 1890, and that the committee on the constitution should continue to act. The Women's Auxiliary Conference includes 107 branches, holding monthly or more frequent meetings, with about 4,200 members. Among these are 42 centers reported as doing post-office mission work. The societies assist in supporting students and aid the benevolent and other enterprises of the National Conference.

Liberal Churches of France.—The Rev. Naresse Cyr was present as the representative of the Central Board of the Liberal Churches of France—the official body, chosen for three years, of 192 churches, composed of descendants of the Huguenots. These churches were in full harmony with the American Unitarians, and had no creed, "except the Protestant principle, taking the Bible as the foundation and free inquiry as the method of getting at that."

Unitarians in Great Britain.—The sixty-fourth annual assembly of the British and Foreign Unitarian Association was held in Essex, June 12 and 13. The Rev. Dr. Aspland presided. The financial receipts for the year had been £5,224. The number of contributing congregations was 113, having increased during the year by 11. Help had been given in aid of Unitarian services in more than 50 places, with grants exceeding £1,800. Special services for the people had been held at Chatham, Hornsey, Guildford, Dewsbury, Shoreditch, Manchester, Mile End, and Ipswich. The mission in Japan had been successfully opened. A legacy for the propagation of Unitarian Christianity in France, called the McQuaker bequest, would yield an income of about £1,000 a year. The removal of Manchester New College to Oxford was determined upon. A delegate from the Reformed Church of France represented that the Liberal churches within that organization and the Liberal delegation of Paris, although they did not use the word "Unitarian," held views and beliefs very similar to those of English Unitarians. The supply of Liberal pastors was small, and many of the ministers were compelled to serve several parishes.

UNITED BRETHREN IN CHRIST. The twentieth General Conference of the United Brethren Church met at York, Pa., May 9. Forty-five conferences and five mission districts were represented. The bishops presided at the daily sessions in the order of their seniority in office. Reports were presented by the societies and departments of the Church, exhibiting the results of their operations during the past four years. The collections for missions during the term had

aggregated \$309,496. Missions had been conducted prosperously in the domestic field, in Germany and Africa, and among the Chinese on the Pacific coast of the United States. The cash receipts of the publishing house had been \$587,486, showing an increase of \$80,301 over those of the previous term of four years. The publications numbered 21,513,833 copies. The concern had realized profits of \$48,700, and returned \$282,884 of assets. The Church Erection Society had raised nearly \$10,000, and had aided in the building of 69 churches. The commission appointed by the previous General Conference to take under consideration the Confession of Faith and constitution of the Church, and prepare a revision of the form of belief and rules of government, presented its report, which had already been submitted to a vote of the membership and received the approval of a large majority. No change of doctrines is proposed in the Confession; but the doctrines already held by the Church are stated anew in thirteen articles. The amendments to the constitution relate principally to the introduction of lay delegation into the General Conference, the abolition of the restriction against secret societies, and the recognition of the various institutions and benevolent enterprises of the Church. The revised constitution and Confession were ratified by the General Conference, after an active debate, by a vote of 111 to 21, and were proclaimed to go into effect May 13, 1889. These proceedings were followed by the withdrawal from the Conference of Bishop Wright and eleven delegates, who proceeded to organize a conference or church on the basis of the old constitution and Confession. The seats of the withdrawing members in the General Conference were declared vacant, and their duly elected alternates were seated in their places, and the Conference ordered that they and all who should join them in the new organization should be regarded as having withdrawn from the ministry and the Church, and as no longer ministers or members of the United Brethren Church. On the question of licensing women to preach the Gospel, the Conference declared:

Not wishing to hinder any Christian who may be moved by the Holy Spirit to labor in the vineyard of God for the salvation of souls, it is ordered that whenever any goodly woman presents herself before any quarterly or annual conference as an applicant for authority to preach the Gospel among us, she may be licensed so to do.

Provided, such person complies with the usual conditions required of men who wish to enter the ministry of our Church, and passes like examinations by the proper committees of the conferences, and in the courses of study; and may be ordained after the usual probation.

The rule providing that no pastor shall remain on the same charge more than three years unless particular circumstances require it, and then only by the consent of the Conference, was amended, by omitting the words referring to particular circumstances, so as to read "no pastor shall be allowed to remain more than three years on the same charge except by the consent of the Conference." A paper was presented with reference to union with the Methodist Protestant Church. Without taking definite action upon it, the Conference instituted a permanent committee on church union, to be elected by the General

Conference, which should have power to appoint fraternal delegates and report to the next General Conference the results of any correspondence with any sister denomination. A policy of founding and cultivating missions in cities, towns, and villages was determined upon. The position of the Conference respecting the traffic in intoxicating liquors was defined as follows:

We believe total prohibition to be the divine law of duty for the state. We are unalterably and forever opposed to any and all forms of license and taxation, by whatever name called, which provides for the continuance of the traffic and not for its destruction. They are sins against God, because they authorize that which he has forbidden, and are crimes against society in that they demoralize the public conscience, and support, by the strong arm of the law, that which should be forever outlawed and condemned.

By the provisions of the new constitution the laity will hereafter be represented in the General Conference, forming about one third of the body. The representation of the laity in the annual conferences, which had been optional with those bodies, was made the rule for all. The bishops of the United Brethren Church are chosen for four years at each meeting of the General Conference. Bishops J. Weaver, D. D., E. B. Kephart, D. D., L. L. D., N. Castle, and J. Dickson, D. D. were elected; and the Rev. J. W. Hott, D. D. was elected bishop for the Pacific coast.

UNITED STATES. The New Administration.—Benjamin Harrison took the oath as President of the United States, in Washington, on March 4, 1889, amid the usual civic display. (For a sketch of his life and portrait, see the "Annual Cyclopædia" for 1888). In his inaugural address he upheld the principals of protection for native industries and the reform of the civil service, approved of the augmentation of the navy, and suggested restriction of immigration, steamship subsidies, and a reform of the electoral laws. He submitted to the Senate the following Cabinet appointments, which were promptly confirmed: Secretary of State, James G. Blaine, of Maine; Secretary of the Treasury, William Windom, of Minnesota; Secretary of War, Redfield Proctor, of Vermont; Postmaster-General, John Wanamaker, of Pennsylvania; Attorney-General, William H. Miller, of Indiana; Secretary of the Navy, Benjamin F. Tracy, of New York; Secretary of the Interior, John W. Noble, of Missouri; Secretary of Agriculture, Jeremiah M. Rusk, of Wisconsin.

James Gillespie Blaine, Secretary of State, was born in Washington County, Pa., Jan 31, 1830. After being graduated with honor at Washington College in 1847, he became teacher of mathematics in the military academy at Blue Licks, Ky., where he became acquainted with Harriet Stanwood, a teacher whose home was in Maine, and made her his wife. He was employed for some time as a surveyor of land. In 1852 he settled in Augusta, Me., becoming editor of the "Journal," of which he was joint proprietor. He was one of the founders of the Republican party in Maine. He removed to Portland to edit the "Daily Advertiser" of that city, was elected to the Legislature, in which he sat from 1858 till 1862, and as leader of his party was elected to the speakership of the Assembly. In 1862 he was elected to the national House of Representatives, in which he served till he entered the Senate in 1876. In Congress he assumed from the beginning a prominent place as a party man. He was elected Speaker in 1869, and presided over the House until the Democrats obtained the ma-

jority in 1875. In 1876 Mr. Blaine and Roscoe Conkling were the chief candidates before the Republican National Convention in Cincinnati for the Presidential nomination, which was given to Rutherford B. Hayes because their friends could not be reconciled. In 1880 Blaine and Grant were the leading candidates before the convention, and the nomination went to Gen. Garfield by way of compromise. Mr. Blaine resigned his seat in the Senate in 1881 to enter the Cabinet of President Garfield as Secretary of State. After the death of Mr. Garfield he retired to his home in Augusta, Me., where he devoted his attention to a book of political history and reminiscences, which he published under the title of "Twenty Years in Congress." In 1884 he was nominated for the presidency by the

self for the bar, but was called away from his studies by the civil war. He went to the field as quartermaster of the Third Vermont Regiment, became major



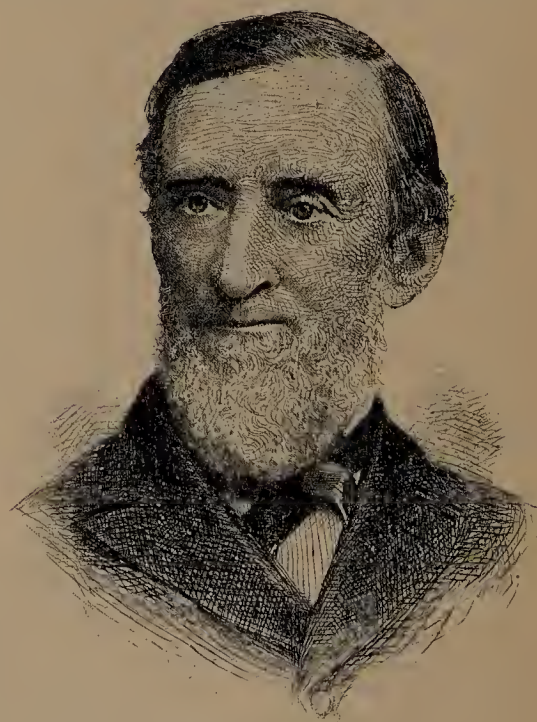
Republican Convention in Chicago, but was defeated by Mr. Cleveland. In 1888 he was again the favorite of a large and resolute minority for the nomination that went to Mr. Harrison, although he was absent in Europe at the time of the convention, and had written a letter peremptorily declining to be a candidate.

William Windom, Secretary of the Treasury, was born in Belmont County, Ohio, May 10, 1827. His parents had migrated to that region from Virginia. He was brought up on a farm, was educated in the academy at Mount Vernon, Ohio, studied law, and was admitted to practice in 1850. He became prosecuting attorney for Knox County in 1852. In 1855 he settled in Winona, Minn. Joining the Republican party, he gained a reputation as a political orator, and in 1858 was sent to Congress. He was a member of the House of Representatives for ten years, serving on the committees on Public Lands and Expenditure and on the special committee on the rebellious States and for three years as chairman of the Committee on Indian Affairs. He was appointed United States Senator in 1870 to fill an unexpired term, and was afterward elected for a new term and re-elected in 1871. In 1881 he resigned on being selected by President Garfield for the post of Secretary of the Treasury. He resigned when Vice-President Arthur succeeded to the presidency, and engaged in railroad and other financial enterprises, making his home principally in New York till he was recalled by President Harrison to his former post.

Redfield Proctor, Secretary of War, was born in Cavenish, Vt., June 1, 1831. He received a common-school education, and began at a late period to prepare him-



of the Fifth Regiment, and on the organization of the Fifteenth Infantry was made its colonel. He served till after the Battle of Gettysburg, resigning at last because his health had become seriously impaired by fatigues and exposure. He engaged in farming after his return from the army, and was about to re-enter



the legal profession when he was appointed receiver of the Sutherland Falls Marble Company. He devoted his energies to the development of the marble quarries of Vermont, which his predecessors in the

business were about to abandon, and by the introduction of machinery and improved methods built up a large industry. In 1878 he was elected Governor of the State. He was a delegate to the Chicago Convention, and a steady advocate of Gen. Harrison's nomination.

Benjamin Franklin Tracy, Secretary of the Navy, was born in Owego, N. Y., April 26, 1830, and was educated at the village academy. He was admitted to the



bar at the age of twenty-one, and when only twenty-four was chosen district attorney for Tioga County. He was re-elected in 1856, and in the same year attended the first convention of the Republican party. In 1861 he was elected to the New York Legislature. As military commandant at Binghamton in 1862 he assisted in organizing three regiments, one of which, the One Hundred and Ninth New York Infantry, he led to the front and commanded during the Wilderness campaign, obtaining the brevet of brigadier-general. He was placed in command of the camp for Confederate prisoners and draft rendezvous at Elmira, N. Y., and served in that post till the war ended. Then he established himself in legal practice in New York city. He was appointed by President Johnson, in 1866, United States District Attorney, but declined a reappointment when it was proffered by President Grant in 1868, and devoted himself to private practice in Brooklyn. He was counsel for the defense in the Tilton-Beecher trial, and has been employed as leading counsel in many important cases. In 1881 he was nominated for Mayor of Brooklyn as the regular Republican candidate, but withdrew in favor of Seth Low. When Judge Charles J. Folger resigned from the New York Court of Appeals, Mr. Tracy was appointed by Gov. Cornell to fill the vacancy. He was defeated as candidate for judge of the Supreme Court, and in 1888 was the unsuccessful candidate for district attorney of Kings County. On Feb. 3, 1890, his residence in Washington was burned, and his wife, his daughter, and his wife's maid lost their lives. Another daughter, and her daughter Alice, sustained injuries in jumping from a window. The Secretary himself was overcome by the heat and smoke, became unconscious while his wife was endeavoring to drag him to an open window, and, after being rescued, remained in a critical condition for more than a week.

John Wanamaker, Postmaster-General, was born in Philadelphia, Pa., July 11, 1837. His father went to Indiana in 1856, and engaged in farming, but the son returned to his native city, and in 1857 began to publish a newspaper called "Everybody's Journal." He took part in the organization of the Young Men's Christian Association, was appointed secretary of the national body in 1859, and at the same time acted as president of the local branch in Philadelphia. Through his efforts the large building of the association was erected in Philadelphia. In 1861 he entered business on his own account. He engaged in missionary work in a depraved district of the city in 1868, and founded Bethany College and the training-schools connected with it. He was one of the originators of the Christian Commission, and has been active in many charities. In 1876 he began the retail business that has grown into one of the largest in the world, turning over \$25,000,000 a year. In connection with his stores he built a hotel for his employes, and introduced the system of profit-sharing. Although often solicited to become a candidate for congressman or for Mayor, Mr. Wanamaker has heretofore refused every political distinction. His portrait is omitted from this group in accordance with his own request.

William Henry Harrison Miller, Attorney-General, was born in Augusta, Oneida County, N. Y., in 1841. He was graduated at Hamilton College, studied law in Toledo, Ohio, in the office of Chief-Justice Waite, and after being admitted to the bar settled in Fort Wayne, Ind. In 1874 he removed to Indianapolis on the invitation of Gen. Harrison to become his partner. Their intimate friendly and business relations con-



tinued, and when Gen. Harrison was elected President he called his law partner to his counsels as one in whom he could absolutely confide. In the summer of 1889, when Judge Stephen J. Field, of the United States Supreme Court, was setting out on his official circuit, his friends, fearing that ex-Judge David S. Terry would attempt to execute his threats of personal violence, directed the attention of the Attorney-General to the long-standing feud between Judges Field and Terry, and Mr. Miller at once ordered the United States Marshal of the district to protect Judge

Field at all hazards. Deputy-Marshall David Nagle was ordered to accompany Judge Field, and, at Lathrop, Cal., he shot Terry dead for striking Judge Field in the face.

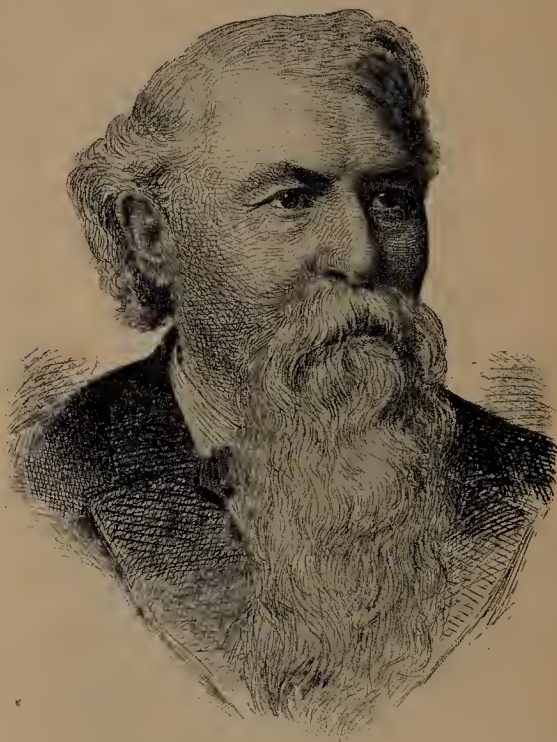
John Willock Noble, Secretary of the Interior, was born in Lancaster, Ohio, Oct. 26, 1831. He attended Miami University, leaving that college to enter Yale, where he was graduated in 1851. At Miami he became an intimate friend of his fellow-student Benjamin Harrison. After admission to the bar he began practice in St. Louis, Mo., in 1855, and afterward settled in Keokuk, Iowa. At the beginning of the civil war he enlisted in the Third Iowa Cavalry, was soon elected first lieutenant, and became adjutant of his regiment. He was engaged at Pea Ridge, at the siege of Vicksburg, and in the battles near Little Rock, and took part in the cavalry raid into Alabama and Georgia. In 1865 he was made a colonel and detailed to sit on the court-martial at St. Louis. At the



disbandment of the army he was brevetted brigadier-general. After the war he resumed the practice of law at St. Louis, taking an earnest interest in politics as a Republican, and for some time was United States District Attorney at St. Louis, by appointment of President Johnson, resigning the office in 1870.

Jeremiah McLain Rusk, Secretary of Agriculture, was born in Morgan County, Ohio, June 17, 1830. He was a stage-driver in his youth, and settled as a farmer in Vernon County, Wis., in 1853. Enlisting in the army in 1862, he was elected major of the Twenty-fifth Wisconsin Infantry, was promoted lieutenant-colonel, and served under Gen. William T. Sherman till the end of the war, receiving for his services at the battle of Salkehatchie the brevet rank of brigadier-general. A year after his return he was elected bank comptroller of Wisconsin, retaining the office for four years. He next served in Congress two successive terms, taking part in the legislation to secure pensions for disabled volunteers and their families. He declined the diplomatic mission to Paraguay and Uruguay when it was tendered by President Garfield in 1881, and also the post of public printer, and in that year the Republicans elected him Governor of Wisconsin. He was so popular in that capacity that he was twice re-elected, but he refused to serve

a fourth term. In 1889 the Bureau of Agriculture was made by Congress a full executive department of the



Government, and for the first time its head became a member of the Cabinet.

Diplomatic and Consular Appointments.

—The following appointments to important diplomatic and consular places were made by President Harrison: Minister to Great Britain, Robert T. Lincoln, of Illinois; Minister to France, Whitelaw Reid, of New York; Minister to Germany, in the first place Murat Halstead, of Indiana, whom the Senate refused to confirm, and subsequently William Walter Phelps, of New Jersey; Minister to Mexico, Thomas Ryan, of Kansas; Minister to Austria, Frederick D. Grant, of New York; Minister to Turkey, Solomon Hirsch, of Oregon; Minister to Brazil, Robert Adams, Jr., of Pennsylvania; Minister to Russia, Allen Thorndike Rice, of New York, who died in May (see OBITUARIES, AMERICAN); Minister to the Argentine Republic, John R. G. Pitkin, of Louisiana; Minister to the Netherlands, Samuel R. Thayer, of Minnesota; Minister to Sweden and Norway, William W. Thomas, Jr., of Maine; Minister to China, Charles Denby, of Indiana; Minister to Italy, Albert G. Porter, of Indiana; Minister to Chili, Patrick Egan, of Nebraska; Minister to Spain, Thomas W. Palmer, of Michigan; Minister to Japan, John F. Swift, of California; Minister to Belgium, Edwin H. Terrell, of Texas; Minister to Peru, John Hicks, of Wisconsin; Minister to Venezuela, William L. Scruggs, of Georgia; Minister to Colombia, John T. Abbott, of New Hampshire; Minister to the Central American States, Lansing B. Mizner, of California; Minister to Bolivia, Thomas H. Anderson, of Ohio; Minister to Denmark, John A. Enander, of Illinois, and subsequently Clark E. Carr, of Illinois; Minister to Portugal, George

B. Loring, of Massachusetts; Minister to Hayti, Frederiek Douglass, of the District of Columbia; Minister to Persia, E. Spencer Pratt, of Alabama; Minister to Switzerland, John D. Washburn, of Massachusetts; Minister to Corea, Hugh A. Dinsmore, of Arkansas; Minister to Liberia, Ezekiel E. Smith, of North Carolina; Minister to Roumania, Servia, and Greece, A. Loudon Snowden, of Pennsylvania; Minister to Siam, Jacob T. Child, of Missouri; Minister to the Hawaiian Islands, John L. Stevens, of Maine; Minister to Paraguay and Uruguay, George Maney, of Tennessee; Consul-General at London, John C. New, of Indiana; Consul-General at Berlin, William Hayden Edwards, of Ohio; Consul-General at Vienna, Julius Goldschmidt, of Wisconsin; Consul-General at St. Petersburg, John M. Crawford, of Ohio; Consul-General at Shanghai, Joseph A. Leonard, of Minnesota.

Civil Appointments.—Among the principal appointments in the civil service made after the new Administration came in are the following: Assistant Secretaries of the Treasury, George S. Batehellor, of New York, and Geo. C. Tichenor, of Illinois; Commissioner of Pensions, James Tanner, of New York, and after his retirement, Green B. Raun, of Illinois; Commissioner of Internal Revenue, John W. Mason, of West Virginia; Commissioner of the Patent Office, Charles E. Mitchell, of Connecticut; First Assistant Postmaster-General, James S. Clarkson, of Iowa; First Comptroller of the Treasury, Asa C. Matthews, of Illinois; Commissioner of the General Land Office, Lewis A. Croff, of Nebraska; First Assistant Secretary of the Interior, George Chandler, of Kansas; Solicitor of the Treasury, William P. Hepburn, of Iowa; Commissioner of Railroads, Horace A. Taylor, of Wisconsin; Assistant Secretary of Agriculture, Edwin Willits, of Michigan; Second Assistant Postmaster-General, Smith A. Whitfield, of Ohio; Assistant Secretary of State, William F. Wharton, of Massachusetts; U. S. Treasurer, James N. Huston, of Indiana; Comptroller of the Currency, Edward S. Lacey, of Michigan; Chief of the Bureau of Engraving and Printing, William M. Meridith, of Illinois; Second Comptroller of the Treasury, Benjamin F. Gilkeson, of Pennsylvania; Commissioner of Indian Affairs, Thomas J. Morgan, of Rhode Island; Solicitor-General, Orlow W. Chapman, of New York; Civil-Service Commissioners, Theodore Roosevelt, of New York, and Hugh S. Thompson, of South Carolina; Supervising Architect of the Treasury, James H. Windrim, of Pennsylvania. As postmaster of New York, in the place of Henry G. Pearson, whose term expired in April, Cornelius Van Cott was appointed. Ellis H. Roberts, of New York, was given the post of Assistant United States Treasurer at New York. In the collectorship of the Custom-house at New York, Joel Erhardt succeeded Mr. Magone.

Judicial Appointment.—A seat on the bench of the Supreme Court became vacant by the death of Justice Stanley Matthews, and the President appointed David J. Brewer, of Kansas.

David Josiah Brewer was born in Smyrna, Asia Minor, June 20, 1837. He was a student at Wesleyan University, Middletown, Conn., and at Yale College, where he was graduated in 1856. He studied law in New York city in the office of David Dudley Field,

his uncle, and at Albany Law School, being graduated in 1858. He was admitted then to the New York bar, but followed farming for two years, and did not begin practice till he settled in Kansas City, Mo., in 1860, which he left for Leavenworth, Kan., where he was employed as United States Commissioner till 1864. He became judge of the Probate Court in 1862, and was elected judge of the Criminal Court of Leavenworth County, and from 1865 till 1869 was judge of the first State court, at the same time filling the office of superintendent of the Leavenworth schools. He served as city attorney in 1869-'70, and then became judge of the State Supreme Court, retiring in 1881. At the same time he was vice-president and afterward president of the Board of Education. In 1884 he was appointed United States circuit judge for the Eighth Circuit.

The Army.—The strength of the United States regular army in officers and enlisted men was, in 1889, as follows:

DESCRIPTION OF TROOPS.	Officers.	Men.	Total.
Infantry (25 regiments)	885	10,563	11,448
Cavalry (10 regiments)	437	6,342	7,279
Artillery (5 regiments)	283	2,437	2,720
Engineers (1 battalion), ordnance corps, hospital service, military academy, signal service, scouts, etc.	583	4,707	5,200
Total	2,188	24,549	26,737

The Navy.—The United States navy in 1889 comprised 2 steamers classed as first-rate, of 8,400 tons displacement, carrying 25 guns; 7 second-rate, of 19,890 tons, with 86 guns; 37 third-rate, of 70,365 tons, with 96 guns; 5 fourth-rate, of 3,240 tons, with 18 guns; 13 tugs with 3 guns; and 11 wooden sailing vessels, of 20,230 tons, with 70 guns. There were besides 20 wooden vessels, of 34,287 tons, armed with 63 guns that were no longer fit for service. (See UNITED STATES NAVY.)

Pensions.—The number of pensioners on the rolls on June 30, 1889, was 489,725, and the total annual value of the pensions was \$64,246,552. During 1888-'89 there were 51,921 new pensions allowed, of the annual value of \$5,578,490, and 71,198 increased in the amount of \$4,229,794, and 1,754, amounting to \$154,087, were restored, while 16,507 pensioners, drawing \$2,352,250 a year, were dropped from the roll, and 2,189 pensions were reduced in the amount of \$84,569. Of the total number of pensioners 351,484 were invalid soldiers and 97,590 widows, etc., of soldiers, 4,547 were invalids of the navy and 2,266 widows and dependents of seamen, 603 were survivors and 9,964 widows of soldiers of the War of 1812, and 17,065 were veterans and 6,209 widows of soldiers of the Mexican War. The total disbursements of the Pension Office during the year were \$89,131,968, against \$79,646,146 in 1887-'88, \$74,815,486 in 1886-'87, and \$64,584,270 in 1885-'86.

Postal Service.—The number of post-offices on June 30, 1889, was 58,999. The length of postal routes was 416,159 miles. There were issued during the year 1,961,980,840 stamps, 452,782,300 stamped covers, 386,808,500 postal cards, and money-orders to the amount of \$115,081,845. The gross revenue of the post-office was \$56,175,611. The total expenditure was \$61,376,847. The cost of transportation of the mails was \$31,893,359 and the sum paid in salaries to post-

masters \$13,171,382. Of the total number of offices 2,584 were presidential and 56,415 fourth-class post-offices.

Public Lands.—The number of acres entered during the year ending June 30, 1889, was, under the Homestead act, 6,029,230, and under the Timber-Culture act, 2,551,069. The number of acres surveyed up to June 30, 1889, was 981,621,984 acres. There remained of the public domain still unsurveyed 833,882,163 acres, but this included the area of Alaska, estimated at 369,529,600 acres, and that of mountains, desert tracts, unsurveyed water areas, public and Indian reservations, school lands, etc., leaving only a small proportion that is suitable for homes and available for settlement.

Indians.—The Indians under the supervision of the Commissioner of Indian Affairs at the close of the financial year numbered 246,056. The births during the year were 4,028, and the deaths 3,606. The number of criminals punished by civil and military courts was 381, and by tribal courts 498. There were 42 Indians killed within the year by persons of their own race, 8 were killed by whites, and the same number of white citizens were killed by Indians. The number of crimes committed by whites against Indians was 112. The number of Indian apprentices was 564. There were 163 male missionaries on the reservations. Of the total number of Indians as given above, which does not include the five civilized tribes nor the Indians, estimated at 30,000 in Alaska Territory, 26,578 could speak English, 22,710 could read, and 62,517 were dressed entirely and 33,533 partly in citizen's attire. There were 17,016 dwelling houses occupied by Indians, and 188 church buildings. The number of church members was 21,922. The expenditure of the Indian Bureau for 1888-'89 were \$6,892,207.

The Census of 1890.—The act to provide for taking the eleventh and subsequent censuses, approved by the President on March 1, 1889, divides the country into 175 districts, each under the charge of a supervisor. The enumeration shall begin on June 1 and be concluded in fifteen days. The superintendent is empowered to intrust the collection of manufacturing, mining, railroad, fishing, telegraph, insurance, express, transportation, cattle, and social statistics to experts and special agents.

The results of the census will be published in thirteen volumes, which will contain data as to population by States, counties, and towns, nativity, color, etc., in the first volume; health and physical conditions and statistics of vitality and morality in vol. ii; public schools, illiteracy, pauperism, and crime, and religious and denominational data in vol. iii; statistics relating to trades and professions in vol. iv; survivors of the civil war in vol. v; wealth, taxation, public indebtedness, and estimated values of property in vol. vi; private indebtedness and mortgages in vol. vii; agricultural statistics in vol. viii; manufacturing statistics in vol. ix; mines and mineral products in vol. x; fish and fisheries in vol. xi; railroads, navigation, telegraphs, and telephones in vol. xii; and insurance in vol. xiii.

The Superintendent of the Census is Robert P. Porter, of New York. The following experts and special agents have been appointed: James

H. Wardle, agriculture; Dr. Henry K. Carroll, churches; Prof. James H. Blodgett, education; Allen R. Foote, electrical industries; Prof. Charles W. Smiley and J. W. Collins, fish and fisheries; Henry Gannett, geography; Charles A. Jenney and Henry R. Hayden, insurance; Frank R. Williams, manufactures, assisted by Edward Stanwood for the cotton and James M. Swank for the iron and steel industry; Dr. David T. Day, mines and mining, assisted by R. P. Rothwell for gold and John H. Jones for coal; J. H. Upton, national and State finances; S. N. D. North, newspapers and periodicals; Frederick H. Wines, pauperism and crime; J. D. Leland, recorded indebtedness; Charles E. Taft, ship building; Prof. Henry C. Adams, transportation; Dr. John S. Billings, vital statistics; T. Campbell Copeland, wealth, debt, and taxation.

UNITED STATES, FINANCES OF THE. The published statements of the Treasury show another year of financial ease. The receipts for the year ending June 30, 1889, compared with those of the previous year, were as follow:

SOURCE OF RECEIPT.	AMOUNT, YEAR ENDING	
	June 30, 1888.	June 30, 1889.
Internal revenue	\$124,296,871 98	\$130,881,513 92
Customs	219,091,173 63	223,882,741 69
Sales of public lands	11,202,017 23	8,038,651 79
Tax on circulation of national banks	1,748,566 85	1,536,087 16
Repayment of interest by Pacific railways	681,696 95	603,764 72
Sinking fund for Pacific railways	1,170,331 43	1,221,124 53
Customs fees, fines, etc. .	1,097,448 20	1,113,020 78
Fees, consular and lands.	2,267,295 23	2,233,548 99
Proceeds of sale of Government property	365,877 26	295,530 42
Profit on coinage of silver dollars	8,852,207 44	9,350,280 90
Profit on other coinage ..	1,035,427 04	814,988 89
Revenues of District of Columbia	2,650,350 81	2,523,950 09
Tax on seal skins	317,500 00	317,500 00
Fees on letters patent ...	1,166,153 76	1,144,514 60
Miscellaneous	3,823,157 45	3,142,844 76
Total net receipts ...	\$379,266,074 76	\$387,050,058 84

The expenditures for the same periods have been as follow:

OBJECT OF EXPENDITURE.	AMOUNT, YEAR ENDING	
	June 30, 1888.	June 30, 1889.
Congress	\$5,892,115 81	\$7,015,584 98
Executive department ...	10,883,470 85	12,242,427 67
Judiciary	4,581,828 63	4,463,322 51
Foreign intercourse	1,593,461 40	1,897,625 72
Improving rivers and harbors	7,004,348 29	11,208,296 70
Other expenses military establishment	31,518,087 82	33,226,974 15
Constructing new war vessels	3,318,290 04	5,630,953 93
Other expenses naval establishment	13,608,147 61	15,747,855 88
Indians	6,249,307 87	6,892,207 78
Pensions	80,288,508 77	87,624,779 11
Construction of public buildings, including sites	4,377,549 94	5,323,394 46
District of Columbia	4,278,113 48	5,248,669 92
Premiums on bonds purchased	8,270,842 46	17,292,362 65
Interest on public debt ..	44,715,007 47	41,001,484 29
Miscellaneous	41,345,721 19	44,473,039 00
Total net expenditures.	\$267,924,801 13	\$299,288,978 25

The following statement shows the condition of the Treasury at the close of the past two years:

ITEMS.	Dec. 31, 1888.	Dec. 31, 1889.
<i>Assets:</i>		
Gold coin and bullion.....	\$324,773,667	\$313,818,942
Standard silver dollars and bullion.....	259,181,810	293,190,040
United States notes.....	41,125,860	15,673,925
Trade dollars and bullion..	6,090,796	6,074,537
National-bank notes.....	348,323	133,253
Deposits in national-bank depositories.....	52,390,164	40,939,854
National-bank notes in process of redemption.....	3,724,723	4,367,102
Bonds, interest, checks, etc.	256,993	562,605
Minor coins.....	78,338	83,775
Fractional silver coins.....	23,655,458	21,927,923
Total.....	\$711,650,637	\$696,771,961
<i>Liabilities:</i>		
Gold certificates.....	\$120,388,448	\$122,985,889
Silver certificates.....	246,219,999	282,949,073
Note certificates.....	10,250,000	9,000,000
Matured debt and interest..	13,306,302	12,086,038
Revenues for United States notes (gold).....	100,000,000	100,000,000
Fund for redemption national-bank notes.....	92,867,552	74,604,789
Public disbursing officers..	43,748,276	42,539,326
Balance.....	84,370,060	52,606,846
Total.....	\$711,650,637	\$696,771,961

It will be seen that of the receipts collected by the Government there has been a marked increase of those from internal revenue and customs sources. The amount received from the latter is the greatest collected therefrom in any one year in the history of the Government. Of the receipts from the subjects of taxation under the internal revenue laws the following are the principal sources and the amounts received therefrom for the past two years:

PRINCIPAL OBJECTS OF TAXATION.	FISCAL YEAR ENDING	
	June 30, 1888.	June 30, 1889.
Distilled spirits.....	\$69,306,166 41	\$74,312,206 33
Manufactured tobacco.....	30,662,431 52	31,866,560 42
Fermented liquors.....	23,324,218 48	23,723,835 26
Oleomargarine.....	864,139 88	894,247 91

Of the receipts from customs during the same period the amounts have been derived mainly as follows:

PRINCIPAL OBJECTS OF TAXATION.	FISCAL YEAR ENDING	
	June 30, 1888.	June 30, 1889.
Sugar, molasses, etc.....	\$52,007,879 89	\$55,995,187 10
Wool, and manufactures of..	36,942,607 24	41,355,538 81
Silk, manufactures of.....	16,351,685 48	17,842,571 54
Iron and steel, and manufactures of.....	21,283,832 45	16,909,340 15
Flax, hemp, jute, etc., manufactures of.....	10,302,095 32	11,409,548 42
Cotton manufactures.....	11,491,897 37	10,841,969 54
Tobacco, and manufactures of.	9,734,987 35	11,194,486 68
Liquors and wines.....	7,663,244 19	7,786,399 87

While during the past year the receipts of the Government have increased nearly \$3,000,000, the expenditures have meantime increased more than \$31,000,000, but there was still a surplus of receipts over expenditures, which, excluding amount paid for premium on bonds purchased, amounted to \$105,053,443.24. At the beginning of the year the cash balance in the Treasury over and above all accrued liabilities was \$129,-

000,000; and out of the surplus revenues for the year and this balance, the Treasury has purchased in the market bonds of the interest-bearing debt of the United States as follow:

DESCRIPTION OF BONDS.	Principal.	Premiums.	Average price.
Four-per-cent. funded loan of 1907...	\$38,106,400	\$10,926,757 78	\$128.6+
Four and one half per cents. of 1891..	82,563,050	6,365,604 87	107.7+
Aggregate.....	\$120,674,450	\$17,292,362 65	.....

The premium paid on the four per cents. was such that if the bonds had been purchased at that price for an investment they would have yielded the purchaser the equivalent of an annual interest of only 2.16 per cent., from which it would appear that a Government bond having eighteen years to run and bearing 2.16 per cent. interest per annum could be sold at par—the highest credit perhaps attained by any State, municipality, or corporation of modern times. The changes in the interest-bearing debt within the past fiscal year have been as follow:

CHARACTER OF DEBT.	OUTSTANDING	
	June 30, 1888.	June 30, 1889.
Four per cents. due 1907.....	\$714,315,450	\$676,214,990
Four and one half per cents. due 1891.....	222,207,050	139,639,000
Navy pension fund, 3 per cent....	14,000,000	14,000,000
Total interest-bearing debt...	\$950,522,500	\$829,853,990

No account is taken of the bonds issued to the Pacific railroads, for which the Government owes only a contingent liability. There are also certain matured obligations not yet presented for payment, but for which the Treasury holds an equal reserve of cash, as it does also for all the outstanding certificates for deposits of gold, silver, and currency, and their amounts, therefore, need not here be considered. There are outstanding, however, of United States legal-tender notes overdue \$346,681,016, against which the Treasury holds but \$100,000,000 reserve. There is also without any reserve an amount of \$6,916,690.47 fractional currency not yet redeemed, of which probably but little ever will be presented for redemption.

The principal of the public debt, then, outstanding June 30, 1889, may be thus stated:

Interest-bearing debt, as above.....	\$829,853,990 00
Legal-tender notes in excess of reserve....	246,681,016 00
Fractional currency.....	6,916,690 47

Total principal in excess of reserve.... \$1,083,451,696 47

At the same time the Treasury held a cash balance in excess of all demand obligations, except for the legal tender-notes, of \$96,000,000, of which \$25,000,000 was fractional silver coin, leaving \$71,000,000 as an available balance, of which \$48,000,000 was on deposit with national bank depositories. A considerable portion of this balance could with safety and advantage be used in the further purchase of bonds in connection with the constantly accruing surplus, and it is now being so applied, and the interest-bearing debt of the Government at the close of the calendar year, Dec. 31, 1889, was but \$765,273,950.

National Banks.—The popularity of the national-bank system has been shown by an increase in the volume of business in its every department excepting that of circulation. The number of banks in operation Oct. 31, 1889, was 3,319, being greater than that of any other time since the organization of the system, and their capital stock amounted to \$602,000,000. Of these banks, 211, having a capital of \$21,240,000, were organized during the year. In this increase Texas leads all other States, having put into operation during the year 36 new banks, with an aggregate capital of \$3,200,000, no other State organizing in that time half as many or investing half as much in capital; but, if relative populations are considered, the new State of Washington, with an increase of thirteen banks during the year, shows the greatest increase of banking facilities of any State. For relative amount of capital invested, it is now hardly a second to any State in the Union.

Circulation.—The changes in the circulation of the currency during the past year have been marked by a decrease of the circulation of national-bank notes and an increase in that of silver certificates. The amount of national-bank notes outstanding for which bonds were held by the Treasury on Oct. 31, 1889, including notes of national gold banks, was \$130,207,285, a decrease in circulation during the year of \$22,159,043. This decrease has been mainly due to the desire of the banks to regain possession of their security bonds, that they might be disposed of at the high market rates that have prevailed. The enforced circulation of the silver certificates of low denomination has caused an increase in them to the displacement of other forms of currency, as will be seen by the statement below.

To arrive at the total currency of the country, the Director of the Mint, in his annual report, takes his own estimate of the metallic stock, and adds thereto the total amount of gold and silver certificates outstanding, thus duplicating to that extent the amount of currency actually in circulation, as the certificate and the bullion held for its redemption can not both be in circulation at one time. Eliminating these amounts, the Treasurer shows results as follow:

CURRENCY.	Outstanding.	In Treasury.	In circulation.
June 30, 1888:			
Gold	\$705,818,855 00	\$193,610,172 46	\$512,208,682 54
Silver	386,572,885 35	79,923,468 70	306,649,366 65
Notes	606,512,959 32	45,737,874 89	560,775,084 43
Total	\$1,698,904,649 67	\$319,271,516 05	\$1,379,633,133 62
June 30, 1889:			
Gold	\$650,063,505 00	\$186,257,490 79	\$463,806,014 21
Silver	420,548,929 00	57,792,586 52	362,756,342 48
Notes	565,482,956 47	34,493,508 05	530,989,478 42
Total	\$1,666,095,420 47	\$278,543,585 36	\$1,387,551,835 11

As \$100,000,000 of the gold in the Treasury is held to meet payment of United States notes, strictly speaking, that amount should be taken in each case from the available amount of gold in the Treasury. It will be seen from this statement that there has been in the aggregate a shrinkage of about \$33,000,000 in the currency of the country during the past year, taking into account the amount in the Treasury, while outside the Treasury alone there has been a small

increase, the public having lost during the year \$18,000,000 in gold and \$30,000,000 in notes, while to its ownership has been added \$56,000,000 of silver. Altogether, there was a loss in gold of \$25,000,000, in notes of \$41,000,000, and a gain of \$33,000,000 in silver, a net loss of \$33,000,000 as stated.

Coinage.—During the year ending June 30, 1889, there was deposited of gold at the several mints and assay offices, exclusive of redeposits, 2,264,833.425 standard ounces (nine tenths fine), of the coining value of \$42,136,435. Of the gold thus deposited, there was of the product of the mines of the United States \$31,444,778, against an amount deposited the previous year of \$32,406,306, indicating a decline in the gold product of this country during the last year of about \$1,000,000. Of foreign gold coin and bullion there was deposited \$6,583,992, against a deposit the previous year of \$36,337,927, a falling off in the foreign gold which found its way to the mints and assay offices of this country of nearly \$30,000,000 during the year.

The total gold coinage executed during the past year amounted to \$25,543,910, being \$2,820,260 less than during the previous fiscal year. In addition to the coinage executed, there were manufactured of fine gold bars \$22,241,121, against \$51,765,436 during the previous year.

The act of May 26, 1882, provides for the exchange of gold coin at its nominal value for the fine gold bars at par, thus saving to the depositor any loss arising from the worn condition of the coins exchanged. This provision offers a small premium for the exportation of bars, as they can be paid for in light-weight coins, at their face value, though purchased abroad at their bullion value, and, in case of any demand for gold in Europe, the bars held by the Treasury are sure to be the first supply drawn upon, being made the cheapest in the market. Bullion dealers have discovered this advantage, and have furnished of these bars for exportation during the year \$57,707,812, against \$15,846.96 in the preceding year.

This movement of gold from the country began about May 1, 1888, and from that date to Sept. 30, 1889, the latest report, the value of the

gold bars shipped amounted to \$61,435,989, consigned to countries as follow: France, \$27,692,855; England, \$18,717,087; Germany, \$15,026,047; total, \$61,435,989. Most of these shipments took place when sight exchange on London was worth in New York from \$4.88½ to \$4.89 per pound sterling, and it is safe to say that, at present prices of transportation, rates of interest, and insurance, it would pay no one to ship gold abroad when the pound sterling—whose par is

\$4.866—is quoted less than \$4.88 sight in New York. Though hardly one third of the gold shipped apparently went to France, as a matter of fact most of it must have gone to that country. The Bank of England pays for gold only 77s. 9d. an ounce (British standard), and sells it at 77s. 10½d. an ounce, equivalent to a coinage charge of 1½d. per ounce, so that the price of exchange in New York would have to be nearly \$4.89 before it would be profitable to ship gold, and that price has not often been reached. Bullion dealers in London, however, could take any price above 77s. 9d. at a profit, and as New York was a debtor to London, and London a debtor to Paris, specie for New York debts payable in London was sent immediately to Paris to meet the payment of London debts due in that city. The condition of trade marks this as a natural channel for the flow of specie, and the bank reports confirm it. During the nine months ending Sept. 18, 1889, the Bank of England increased its coin reserve but \$7,000,000, while during the same period the Bank of France increased its stock of gold \$63,790,082.

It is well known that the Bank of France and the Bank of Germany have for some time been gradually increasing their gold reserve, even offering a slight premium or advantage to secure that metal. But the unusual shipment of gold from this country to France was partly owing to the demand of the Bank of France for specie with which to meet the letters of credit and drafts taken abroad by the visitors from this country to the Exposition, of whom it is known there were over 175,000, and whose expenses and purchases would hardly have aggregated less than \$75,000,000, probably much more, and to meet this extraordinary demand very naturally recourse would be had to the shipment of specie, the exchange of other products showing no balance in favor of this country to supply the deficiency. The present outlook, however, indicates that a portion, at least, of this gold is being returned to this country.

The coinage of the silver dollar has been carried on as required by law. The average London price of silver during the year has been 42½d. an ounce sterling. At this price the bullion value of the silver dollar is 72 cents. There was coined during the fiscal year \$33,793,860 of these dollars, at a seignorage or profit of \$9,370,062, the silver in the coins costing, in gold, that amount less than the face value of the silver dollar coined. Since the passage of the silver dollar authorizing act in 1878 the price of the silver in a standard dollar has averaged \$0.822, and the total seignorage or profit has been \$56,349,737. The total number of pieces coined to Nov. 1, 1889, was 343,638,001, of which about 60,000,000 were in circulation, 277,000,000 held for payment of certificates outstanding, and 6,000,000 held in the Treasury in excess of certificates issued. The total number of pieces coined previous to 1878 was less than 9,000,000, and for twenty-five years at least none of them had been in circulation. As the coinage is compulsory, it must go on until further legislation shall take away the compulsory provisions of the act.

UNITED STATES NAVY. The Navy Department is divided into eight bureaus, each of which is supervised by an officer appointed for

four years as chief, with the rank of commodore. These bureaus are named: Navigation, Equipment and Recruiting, Ordnance, Yards and Docks, Medicine and Surgery, Provisions and Clothing, Steam Engineering, Construction and Repair. For some years the conviction has been forcing itself upon the minds of all interested in naval affairs that before proceeding further in the restoration of a navy, a thorough reorganization of the Navy Department was needed. Under the old organization it was found almost an impossibility to arrange and classify the new supplies and sources of supply needed for the creation of new fleets and to continue the work of increasing the navy. During the past year an order was issued recasting the duties of the several bureaus and concentrating under one bureau, wherever possible, that which had formerly been scattered among several. In general, the new organization groups the duties of construction, equipment, and supply logically and systematically among several bureaus, and places the *personnel* of the navy, the training, drilling, inspection, and discipline of officers and men under the Bureau of Navigation. Another important and new feature of the reorganization of the departmental work is that constituting the chiefs of the five bureaus that have to do with the preparation of material, yards and docks, ordnance, equipment, construction, and steam engineering to be *ex-officio* a board for the design, construction, and equipment of new ships. One effect of the order will be to make the Bureau of Navigation correspond to the adjutant-general's office in the War Department in the control of the entire *personnel* of the organization. The order brings together for consultation all who are directly concerned with plans and details for new vessels, their construction, equipment, machinery, and armament, and admits of the fixing of responsibility at once where it belongs. It is not possible to say any longer that one bureau is waiting for another to reach a conclusion.

Loss of Vessels.—During the year the old wooden vessels have been considerably reduced in number. In March the severest disaster that has befallen the navy in recent years took place at Apia, Samoa. (See SAMOA.) The "Juniata" and the "Quinnebaug," two third-rate ships, have been stricken from the naval list as unfit for further service. The "Brooklyn" and the "Osage" were at first ordered to be repaired, but, upon opening them up for the necessary work, they were found to be so far gone that a resurvey decided that it was not worth while to repair them.

New Vessels.—The work of rebuilding the navy and replacing the worn-out wooden craft by modern steel vessels goes steadily on, and during the year the following have been launched: "Philadelphia," "San Francisco," "Cushing," "Newark," and "Concord." The "Baltimore," "Charleston," "Yorktown," and "Petrel" have been commissioned for sea service, and have undergone their official trials. The "Baltimore," of 4,400 tons, showed at her first trial 8,977-88 horse-power, 19-57 knots average speed for four hours, and 20-2 knots speed during the best hour of the four. As the horse-power marked a slight deficiency (22-12) below the contract requirement,

the contractor, at his own request, was given another trial, which proved a brilliant success. The horse-power in the second trial was somewhat in excess of the contract requirement, the average speed for four hours being 20.1 knots, and the highest speed for one hour being 20.39. This result is unparalleled by any war vessel in the world having a displacement equal to that of the "Baltimore." The "Charleston," of 3,730 tons, shows 6,666.2 horse-power, 18.2 knots average speed for four hours, and 18.3 knots during the best hour of the four. This was not equal to the performance of her prototype, an English vessel built for use by the Japanese Government; but the vessel was nevertheless accepted, and is in commission as flagship of the Pacific squadron. The "Yorktown," of 1,700 tons, developed 3,398.3 horse-power, 15.6 knots average speed, and 16.4 knots speed during the best hour of the four. At a subsequent steam trial, the speed obtained was 17.2 knots. During the cruise of this vessel, as one of the squadron of evolution, she has proved herself of a very satisfactory type in all important particulars, and it is thought that a very wise move is being made in duplicating her in the "Concord" and the "Bennington." The "Petrel," of 870 tons displacement, the smallest of the new vessels, in spite of several attempts to comply with the terms of her contract, did not succeed in developing the required horse-power. Her mean speed was 11.55 knots, and the maximum speed for one hour 12.85 knots. In reference to these speed trials, it appears that abroad among contemporary vessels of the same classes of the three that did not come up to the contract, some few may be found whose record trial shows a figure slightly in excess. The custom prevailing abroad is to force the engines on their steaming trials so far that, when put to everyday use, they are found to have been overtaxed. It is a noteworthy fact that most of our new vessels have, at later trials or in later service, surpassed their own record on the contract trial, and it is equally true that the usual experience with European vessels is just the other way. The general results prove that both designers and contractors have kept abreast of the extraordinary developments in ship building since the earlier cruisers were laid down.

An important change was made in the designs of the armored cruiser of 7,500 tons as she was originally classed. Her tonnage has been increased to 8,150 tons, to accommodate the additional armor and to correspond, as closely as possible, to the best type of armored cruiser abroad. Her hull is to be of steel, not sheathed, with double-bottom and close sub-division to a point well above the water line. Protection of the hull is to be afforded by means of a curved steel deck, six inches thick in its heaviest portions and extending five feet below the water line. Below this protection deck are to be placed the propelling apparatus, steering gear, magazines, shell rooms, and all that are ordinarily styled the vitals of the ship. An armor-belt at the water line, three inches thick, extends the entire length of the vessel, three feet above and below the surface of the water. The vessel will be driven by twin screws, and the four engines will be so arranged that only two will be used for cruising at low speed. The battery is to be

four 8-inch rifles, mounted in Hichborn barbette turrets; sixteen 4-inch rapid-fire guns, protected by segmental steel shields; and twenty rapid-fire and machine guns. There will be also six torpedo tubes and a torpedo defense of steel-ring nets carried by outrigger booms.

Cruisers 7 and 8, for which \$2,200,000 was appropriated, were advertised for; but as there were no bids within the sum allowed, it was decided to build them at the navy yards at Brooklyn and Norfolk. These vessels are designed for very high speed and very powerful engines are needed. The machinery is to be built for both ships at the Brooklyn Navy Yard. The engines are of the twin-screw, vertical, triple-expansion type, to develop 10,000 horse-power at full speed when making 164 revolutions with 160 pounds pressure. A speed of 19 knots is expected. They have poop and fore-castle decks, with an open gun-deck between. They are 300 feet long, 42 feet beam, and, at 18 feet draught, are to displace 3,183 tons. They have protective steel decks 2½ inches thick on slopes amidships, 2 inches on slopes at ends, and 1 inch on flat. A coffer dam is worked along the water line next the outside plating in the coal-bunker on the slope of the protective deck, which will be filled with woodite. The rig is that of a two-masted schooner, and the main battery consists of one 6-inch rifle, ten 4-inch rapid-fire guns, with 7 machine guns and 6 torpedo tubes.

Cruisers 9, 10, and 11, of 2,000 tons displacement, are to make 17 knots, and are being built by contract at Boston and Baltimore. Their machinery is, in general terms, like that for the 3,000-ton cruisers and 5,400 horse-power are to be developed, with 185 revolutions and 160 pounds steam pressure. Their general deck arrangements and rig are also like the 3,000-ton vessels, while their dimensions are somewhat smaller, being 257 feet length, 37 feet beam, 14½ feet draught. The main armament is eight 4-inch and two 6-inch rapid-fire, breech-loading rifles, with a secondary battery of ten machine and small-caliber rapid-fire guns, with six Howell torpedo launching ports.

Gunboats 5 and 6, of 1,000 tons, are also under contract, and are to cost \$350,000 each. They are to be propelled by twin-screw engines to develop 1,600 horse-power, and a speed of 14 knots. Their length is 184½ feet, beam 32 feet, draught 12 feet, at which they are to displace 1,050 tons. They carry a heavy battery, in proportion to their tonnage, consisting of eight 4-inch rapid-fire rifles and six guns in the secondary battery. They carry a large supply of coal, which with economy can carry them five thousand miles. They are to have a complement of 150 men, and are rigged as two-masted schooners.

The practice cruiser, for the use of naval cadets, is intended to embody complete facilities for practical instructions in seamanship, in ordnance, torpedoes, and steam engineering, while retaining a good fighting efficiency for general service. Her rig is that of a barkentine. She is 180 feet long, 32 feet beam, and at 11.5 feet draught displaces 835 tons. Her machinery is similar to that of the 1,000-ton vessels, her speed 13 knots. She has four 4-inch rapid-fire guns, seven machine guns, and one above-water training torpedo tube.

Important alterations have been made for the coast-defense ship "Monterey," now building by the Union Iron Works at San Francisco. The barbette type of turret designed by Naval-Constructor Highborn has been substituted for the original English-design turret. Two 12-inch guns are to take the place of the 110-ton 16-inch gun, a 10-inch gun replaces the 12-inch of the old plan, and the 15-inch dynamite gun is abandoned. The changes in the armament demonstrate that the present naval *régime* have little faith in large-caliber guns, which are unwieldy and only suitable for harbor defense. The value of the dynamite gun is not sufficiently determined to make its adoption wise.

Decided changes have been made in the construction plans of the double-turreted monitors "Puritan" and "Amphitrite." Their armament and armored protection are greatly increased, and the quarters of officers and crew have been made more comfortable and roomy. For the four 10-inch guns of the "Puritan," in roller-base turrets, four 12-inch guns in barbette turrets have been substituted, and instead of the hurricane deck a superstructure is built between the barbette turrets. The "Monadnock," at Mare Island Navy Yard, is also to undergo similar alterations.

The record of the "Dolphin," one of the first as well as the smallest of the first lot of steel vessels, is considered one of the most satisfactory proofs of the ability of the American artisan and of the excellence of his work. In the course of her 58,000 miles of cruising she was under steam 9,000 hours, during which she stopped for repairs but once, and then for only two hours. Nor is this record the less remarkable in view of the confident predictions with which at the outset of her career the official condemnation of the vessel was somewhat prematurely pronounced by both expert and non-expert judges.

The Squadron of Evolution.—The completion of a sufficient number of new ships enabled the Squadron of Evolution to be formed. It is at present composed of the "Chicago," the "Atlanta," the "Boston," and the "Yorktown," and its principal objects are to modernize tactics and drills to suit the new condition of affairs. A large amount of valuable work has been accomplished in this squadron, which offers an opportunity to put to a practical test much that has heretofore been purely theoretical, owing to absence of material for experiment. The "Cushing," as the first of the torpedo fleet is named, was launched at the Herreshoff works, Bristol, R. I., on Jan. 23. The type of her boiler was, at the request of the contractors, changed last summer to that of the Thorneycroft, as it was thought that higher pressures could be maintained by using this type than by that of any American pattern. This vessel gets her name from the late commander William B. Cushing, U. S. N., who blew up the Confederate ram "Albemarle" at Plymouth, N. C., and performed other daring feats. The vessel was built for the prime purpose of discharging auto-mobile torpedoes while traveling at a high rate of speed. The guaranteed speed is 22 knots an hour, and it is expected that the trials will develop a rate almost touching 25 knots. Her displacement is a little in excess of 100 tons,

length 138 feet, depth 10 feet, extreme draught of hull 4 feet 4 inches, below which, however, the rudder extends. The peculiarities of the new boat are her exceedingly fine lines, light draught, balanced rudder, and overhung guard-rails to protect the twin screws.

After a long delay, waiting for the valve-gear of the pneumatic guns to be put in thorough order for trial, the "Vesuvius" was finally reported ready, and the trial for rapidity of fire and also for ascertaining the capacity of the system for maintaining the rapidity for a given time was held in October. This trial was satisfactory, 15 shots being fired in 16 minutes and 50 seconds, and the air-reservoir capacity was found to be ample for firing 30 shells—all the vessel can carry—without stopping to fill the reservoirs. This is double the capacity demanded by the contract, and the rapidity was nearly twice as great as was required. This type of gun is an important adjunct to other means of torpedo defense and long-range armor-piercing guns in any system of harbor defense that may be adopted.

Guns and Projectiles.—The number of high-powered steel cannon for the navy completed to date is: 5-inch, 2; 6-inch, 48; 8-inch, 8; 10-inch, 3. Besides these, nine guns are in course of construction, complete sets of forgings for them having been received. All the completed guns have been tested, and as this type of gun has proved satisfactory, no change in design has been made. The standard muzzle velocity of these guns remains at 2,000 feet a second; but experimental firing with American-made powder, using a charge of less than one-half the weight of the projectile, shows that this can easily be increased to 2,100 feet a second, without undue strains, and with only a slight increase of pressure above that now adopted for service. The final twist of the rifling has been increased from one turn in 30 calibers, as used in the earlier 6-inch guns, to one turn in 25 calibers, giving greater steadiness in flight and the power to use longer projectiles. Forgings for seven 4-inch rapid-fire guns have been ordered, and experiments are in progress for testing the necessary powder and metallic cartridge cases. Designs of breech mechanism on the slotted-screw system, and on the Driggs-Schröder system, have been decided upon for comparative trial. The Bethlehem Iron Company has virtually completed its plant for the production of gun forgings, and deliveries are now made with considerable speed.

The manufacture of cast-iron projectiles has proved that nothing is to be desired, as far as cast iron is concerned, and the tendency to porosity has to a considerable extent been overcome. In passing through steel plates, these projectiles are so much disrupted that it is probable that a change in the shape of the head will have to be made.

Powder made for 6-inch guns has given most excellent results, but that for the 8-inch and 10-inch guns has not yet given entire satisfaction; that is, it will not uniformly give 2,000 feet muzzle velocity, with a chamber pressure of 15 tons. Square black powder for use in the 6-pounder and 3-pounder rapid-fire guns has been made in considerable quantities, and, although it answers

equally for either gun, the more satisfactory course has been adopted in having a different powder made for each caliber. It is found that powder used abroad in the rapid-fire guns, which gave high velocities with a charge of about one third of the weight of the projectile, will not bear exposure to hygrometric changes, and for that reason is very inconvenient for use in service. Some other form of powder must be used, the weight of the charge remaining as usual, or about half that of the projectile. The subject of smokeless powders is being thoroughly inquired into at the torpedo station at Newport, where certain of the commercial explosives have been examined, and where a scientific investigation is in progress. Gun-cotton has been manufactured as required, and the cost of making it has been reduced enormously through using cheaper material and improving the organization of labor. Were the product required in large amounts, the price could be lowered still more. Further experience with this explosive as the bursting-charge of shells, induces the belief that it can be used safely and advantageously.

Clark's Deflecting Target.—Preparations for the trial of this armor occupied much time, owing to poor facilities for handling the heavy weights required, and when the actual test took place, in September, it only served to demonstrate a fatal weakness in the system of construction of the target. A single shot from a 10-inch gun in the vertical plate was sufficient to rupture every bolt connecting the lower deflecting plate with the vertical armor, this rupture taking place from tensile strain produced by forcing up the metal over the point of impact.

Secondary Batteries.—The Hotchkiss Ordnance Company has practically overcome the difficulties met with in developing the manufacture of these arms, and has delivered nineteen 6-pounders, twelve 3-pounders, ten 1-pounders, thirty-two 37-millimetre revolving cannon, and 48,000 rounds of ammunition. An order has been placed for ten 6-pounders and ten 3-pounders, with their ammunition. In addition the newer gun of the Driggs-Schröder pattern has proved so excellent that a similar order has been placed with that company.

The New Gun-Factory.—The buildings for the gun factory proper are practically completed. The large 110-ton crane is not yet ready, but the 40-ton and 25-ton cranes work satisfactorily. The shrinking-pit proper is finished, and its interior fittings are well advanced toward completion. Large and powerful machine tools for use in the manufacture of the heaviest calibers are to be introduced, those for handling 8-inch calibers being the heaviest at present in use. As these tools are enormously heavy, and of a size not made in this country, it is necessary to proceed with caution; but when the heavy forgings are furnished by the contractors, the Government will possess an establishment of its own as thoroughly equipped and as capable of undertaking the work of gun-construction as any similar plant in the world.

Torpedoes.—The Howell torpedo has been elaborated, and numerous unofficial trials have been had during the year. A launching appa-

ratus has been introduced, which promises to be very successful. The tubes for this torpedo, as fitted to the cruisers, use gunpowder impulse for projecting the torpedo, a device much superior to the hydraulic or pneumatic telescopic rammer sometimes used. Experiments with this torpedo for accuracy were made at a net buoyed 300 yards distant, which was struck once at 20 inches from the center, once fair in the center, and once 6 feet from the center. A fourth shot, fired at 900 yards, to determine whether there was any deflection, brought up absolutely on the line aimed at. The metal used is manganese bronze, and the appearance of the torpedo when rushing through the water is that of a magnificent silver fish. The Patrick torpedo trials have been delayed until spring. They are guaranteed to make 20 knots for a distance of 1 statute mile, to carry 400 pounds of explosive each, and to be readily manoeuvred by means of electricity from a designated station. The Hall torpedo is of the auto-mobile type, depending upon compressed air for motive power. Its special features are the apparatus for regulating the submersion, no assistance being derived from hydrostatic pressure. A pair of diving-fins on its nose cause it to maintain a practically horizontal path under water, the fins being actuated by a piston worked by a column of mercury. A governor regulates the speed of the torpedo, which must, as far as possible, be uniform, this uniformity being depended upon in place of the hydrostatic pressure. This torpedo has been found to possess good and regular speed, and the lateral steering apparatus has worked satisfactorily.

Electric Lighting.—At an early date, electric lighting for naval vessels began to attract the attention of naval experts, and in 1882 a special appropriation was asked for a trial plant on board ship; the result was the fitting out of the "Trenton," the first man-of-war in the world to be lighted by electricity. Since that time many of the old ships, and all of the new ones, have received plants. Search lights, as well as incandescent lights, are used; and it has been found that the material and apparatus for all purposes can be made in the United States. Several of the younger officers have been trained in all the practical details of installation on board ship, and there is now a small corps of naval experts in this branch. Electric signals by means of electric lights have been the subject of a series of interesting experiments. The regulation red and green signal lanterns were fitted with 16-candle-power lamps, and the necessary apparatus for opening and closing their circuit. The current was kept on from two to five seconds, and the combinations necessary to represent different figures were easily read three fourths of a mile distant. It was estimated that 32-candle-power lamps, sufficiently separated, would admit of signals being read from 4 to 5 miles.

Plans have been made for the lighting of all the principal United States navy yards and receiving-ships, and the electric plants are being introduced into them.

All that has thus far been done in the way of installing motors is to introduce an experimental shell-hoisting apparatus and a motor for training a gun.

Compasses.—Observations for magnetic forces, horizontal and vertical, and magnetic determination of deviation by use of compass buoys, have been made with the new vessels as fast as they have been prepared for cruising. As a result, the opinion is formed that no reliable data can be gathered unless the vessel is in dry dock. Even in the calmest weather a vessel in the water always has motion, which is quickly determined when the delicate magnetic instruments are used.

Trials were made with an incandescent lamp with a view of ascertaining the desirability of lighting binnacles by means of electricity, and it was found that when the lamp was brought close to the compass a deflection of the needle, was apparent. Notwithstanding that this was very small, it was deemed best to order oil lamps, on the general principle that no avoidable error, even when capable of exact measurement, should be allowed in the compass-reading.

Steam Engineering.—During the year the Bureau of Steam Engineering prepared plans and specifications for all the above described new vessels as well as designing new boilers to work under forced draught for the older wooden vessels. Plans and specifications for the machinery of the "Maine" were furnished to twenty-five engine-building establishments, and a large number were furnished of the "Texas"—the 2,000 and 3,000 ton cruisers. Besides these, educational institutions that give instruction in marine engineering have been supplied with plans and specifications of one or more of the designs prepared by this bureau.

Several interesting and valuable tests have been made with different types of tubular and coil boilers, and much information in regard to the performance and management of boilers of this type under natural and forced draught has been obtained. For several years the tendency has been to diminish the weights of the machinery in ships of war to a point far below what is absolutely necessary for strength and safety.

One important step has been taken in regard to the machinery of vessels' boats run by steam power. This bureau has designed machinery in which lightness of parts has been carried as far as prudence will admit, and which for compactness, accessibility of parts, and power for weight will compare favorably with anything in use by foreign navies.

Yards and Docks.—The chief features for the year have been the opening of the Simpsons dry dock at the Norfolk Navy Yard and the selection of sites for two new navy yards by commissions of naval officers. Heretofore naval dry docks have been built of granite, and no change had been made for many years. The expenses of maintaining them were very great, and, as they could not be enlarged without very great expense, it was decided to replace them with docks built of timber, which can be constructed at a comparatively small price. Another very serious objection to the granite docks is the fact that their sides are almost vertical, and in cloudy weather it is so dark at the bottom of the dock that efficient work is almost impossible.

An appropriation having been secured, docks were begun at the navy yards at Brooklyn,

League Island, and Norfolk. The first is all but finished, work on the second is progressing favorably, and that at the last-named yard has been completed and accepted by the Government. Notwithstanding its great size, it can be pumped dry in one hour and five minutes, whereas the granite dock with its less powerful machinery requires eight hours to be emptied. The commissions appointed to select sites for navy yards were to locate one on or near the Gulf of Mexico and the south Atlantic coast, and the other north of the forty-second parallel of north latitude in Oregon or Washington or in Alaska. The former commission selected Algiers, on the Mississippi, opposite New Orleans, for a naval station. The other commissioners selected Point Turner, at the entrance of Dye's Inlet, Puget Sound.

Enlisted Men.—The indisputable advantage of having men equipped with knowledge of the new implements applied to all the new ships can hardly be overstated. The frequent applications received from men anxious to receive the benefits of instruction at the ordnance yard and at the torpedo school indicate their appreciation of the great importance of such a course, and the effect upon the service of such a well-trained class of men is, in a high degree, beneficial. The number of those instructed has not heretofore been large enough to meet the demands of vessels in commission, so that hereafter a large quota will be detailed, from which it is proposed appointing the future warrant officers. Strenuous efforts are being made to Americanize the *personnel*, so far as the enlisted element is concerned. The following table shows what may be considered a fair yearly average of enlistments, discharges, desertions, etc.:

Men allowed	7,500
Enlisted at rendezvous	2,253
Enlisted on shipboard	2,446
Discharged	4,153
Honorably discharged and continuous-service men during the year	2,318
Desertions	749
Deaths	85
In Coast Survey	275
In Fish Commission	124
Enlisted formerly apprentices	100
Enlisted under continuous-service certificate	593

Discharging the apprentices when they attain the age of twenty-one results in the loss of a large majority of them, and the cost of training the whole, divided among those who remain in the service, shows an alarming sum for each man so obtained.

Hydrographic Office.—From this office are issued charts, sailing directions, marine meteorological reports, and compilations relating to matters of navigation, soundings, surveys, and kindred subjects. A few years ago branch offices were established in cities on the sea-board, and in 1889 three new ones were opened—at Portland, Oregon, Norfolk, Va., and Savannah, Ga.—making nine in all, the others being at Boston, New York, Philadelphia, Baltimore, New Orleans, and San Francisco. The officers attached to them during the year visited 14,724 vessels, distributed more than 1,000,000 publications of use to mariners, compared and corrected thousands of charts and many nautical and meteorological instruments, and collected valuable nautical information, which would otherwise have been

lost. These offices have become a recognized necessity at all points where they are in operation. In connection with the Signal Service, steps were taken to organize a corps of voluntary observers for duty in the West Indies during the hurricane season, in order that due warning should be given to shipping of the approach of destructive storms. The "Pilot Chart," issued monthly, has been instrumental in calling general attention to the subject of floating wrecks, by showing graphically their tracks from month to month, and has called the attention of the maritime world to the subject of diminishing the risks of navigation. Longitudinal measurements and magnetic observations were successfully carried on in Central America and Mexico, and a party is now at work in the West Indies and along the Spanish main. This work includes the establishing, through means of the telegraph, of the longitude of heretofore imperfectly surveyed places.

Naval Attachés.—When the first cruisers were being designed, the Navy Department took steps to supply its want of experience by the systematic acquisition of information as to naval progress abroad. The establishment of the Office of Naval Intelligence, and the assignment of naval *attachés* to duty in Europe, both of which measures date from 1882, have been of incalculable assistance in the work of reconstruction. The importance of a knowledge of progress abroad was increased by the rapid strides made during the period. In 1882 the compound engine was the highest development of marine engineering in practice. The first successful example of the triple-expansion engine was designed about this time, but it did not come into general use until 1885. Of the extraordinary development in ship and engine construction, by which, between 1882 and 1885, the art was almost revolutionized, the attainment of high speed made practicable, and the standard advanced from sixteen to twenty knots an hour, the Navy Department was able to reap the full benefit. The first *attaché* was accredited to London, and was soon followed by another, whose field of duty embraced Paris, Berlin, and St. Petersburg. The last one established includes Vienna and Rome. From these cities comes a vast fund of information, which is carefully classed and submitted to the great repository of naval information, the Office of Naval Intelligence, which, through an annual publication, sends out to mariners and others all but its strictly confidential communications.

War College.—On the conclusion of last year's course of torpedo instruction, a war college course of three months was established, the members of the class being mostly the same as those who had just composed the torpedo class at Goat Island, Newport. For several years the course had been held at Coaster's Harbor Island, also in Newport Harbor; but as it was held that this interfered with the routine of the apprentice training system conducted on the same island, it was deemed expedient to make a change. The course consists principally of lectures on topics that are calculated to keep the class well up with naval progress and the establishment of the college in 1884 represented a marked advance in naval development.

Organization Board.—A board of naval officers was appointed by the Secretary of the Navy to investigate the subject of naval recruiting, and also to revise the system of drills and exercises in the navy, to adapt them to the modern weapons. They recommended a system of enlisting whereby various towns are to be visited by specially selected officers and recruits are to be forwarded to a central rendezvous, where they are to be put through all of the preliminary exercises, taught the care of person and clothing, and generally instructed in the duties they will be called upon to perform. The scale of ratings and the pay of enlisted men were also considered, and various changes recommended which are calculated to secure in future a far better class of men than has ever been secured heretofore for naval service.

Policy Board.—The Naval Policy Board was appointed to consider the subject of the needs of the navy in the matter of ships, their type, speed, armament, and the purposes for which they are best adapted. After a study of the best vessels that are owned by foreign powers, and of the needs of our own country, its strategical features, etc., the Policy Board reported that the following vessels were needed:

Ten first-class battle ships, 10,000 tons each; cost, \$56,400,000.

Three third-class battle ships, 6,300 to 7,500 tons each; cost, \$11,000,000.

Eight first-class battle ships, 8,000 tons each; cost, \$39,890,000.

Twelve second-class battle ships, 7,100 tons each; cost, \$52,200,000.

Five third-class battle ships, 6,000 tons each; cost, \$18,000,000.

Six harbor-defense monitors, 3,815 to 6,060 tons each; cost, \$25,000,000.

One cruising monitor, 3,800 tons; cost, \$1,900,000.

Eleven rams, one of 2,000 tons and ten of 3,500 tons each; cost, \$19,500,000.

Nine thin-armored cruisers, 6,250 tons; cost, \$28,800,000.

Four first-class protected cruisers, 7,500 tons, each; cost, \$15,760,000.

Ten first-class protected cruisers, 5,400 tons each; cost, \$28,000,000.

Twelve second-class protected cruisers, 3,000 to 4,500 tons each; cost, \$22,500,000.

Six third-class protected cruisers, 1,700 to 3,190 tons each; cost, \$5,500,000.

Ten gun vessels and dispatch boats, 850 to 1,500 tons each; cost, \$4,500,000.

Sixteen torpedo cruisers, including "Vesuvius," about 900 tons each; cost, \$7,500,000.

Three torpedo depot artificer ships, 5,000 tons each; cost, \$6,500,000.

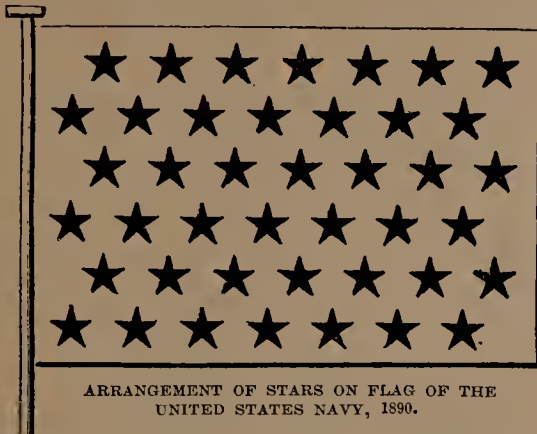
One hundred and one torpedo boats, 65 tons each; cost, \$6,585,000.

This makes a total of 227 ships, of 610,035 tons, at a cost of \$349,515,000. It includes \$67,965,000 already expended.

The matter is being considered by Congress, the issue being raised as to whether it would be advisable to begin with the construction of the immense line-of-battle ships as proposed by the Policy Board. The fleet proposed by the Secretary of the Navy provides for the building of eight battle ships, two armored coast-defense vessels, three gunboats, and five first-class torpedo boats.

New United States Flag.—Owing to the admission of four new States to the Union, it has become necessary to make a change in the union-

jack of our national ensign. The stripes remain as heretofore, seven red and six white, but there



will hereafter be forty-two stars, which are to have the arrangement as shown in the accompanying illustration.

UNIVERSALISTS. The Board of Trustees of the General Convention of Universalists of the United States and Canada reported statistics, of which the following is a summary: Number of parishes, 934; of families, 40,929; of church members, 38,787; of members of Sunday-schools, 53,067; value of property (less debt), \$7,584,698; expenses and contributions, \$1,127,803. The treasurer's accounts were balanced at \$94,185. The total amount paid on account of the Scholarship fund since the beginning of the enterprise had been \$132,899. The total amount of nine special funds (including the Murray Centenary, Theological Scholarship, and Glenn Ministerial Relief funds) was returned at \$212,717. The gifts during the year for missionary and other purposes administered by the convention had been \$64,298. The gifts to colleges and other educational institutions actually paid in had been \$81,505. The pledges in behalf of the proposed mission to Japan amounted to \$16,194; and it was hoped that the mission might be begun at once.

General Convention.—The General Convention met in Lynn, Mass., Oct. 23. The Hon. Hosea W. Parker, of New Hampshire, presided. The Committee on the Proposed Revision of the Confession of Faith reported, recommending the following articles for adoption:

1. We believe in one God, the Father of all men, whose nature is love, and in Jesus Christ, his Son, through whom he has brought life and immortality to light, and will finally save all his children from sin.
2. We believe that the Holy Scriptures of the Old and New Testaments reveal the character and will of God, and the duty and destiny of mankind.
3. We believe that righteousness is the true object of life, and that we ought earnestly to pursue it, serving our fellow-men in love, striving after knowledge of God and oneness with Christ, and thereby laying hold on eternal life.
4. We believe that the recompense of righteousness and the punishment of sin are certain, and that in the life to come, as in this, man is under the obligations and enjoys the opportunities of God's moral government.
5. We believe that the one true Catholic Church is composed of all who follow Christ, and is the visible kingdom of God, in whose formal covenant and fellowship all believers should be united.

The report, after a free discussion, was recommended, and further action upon it was deferred till the next meeting of the General Convention. Afterward, a declaratory resolution was adopted by a unanimous vote.

That the Universalist Church of America in General Convention assembled, reaffirms the position which it has consistently held from the beginning, to wit, That it rests on and believes in the historical veracity of the New Testament records of the life and words and works of our Lord Jesus Christ.

The report of the Commission on Sunday-schools commended the International Lessons as a great improvement over the lack of system which formerly prevailed in Sunday-school teaching, but referred to some needs which it still left unprovided for, and expressed the opinion that the Sunday-school should be used to promote the doctrines of Universalism. The Convention offered a welcome to all indications of desire for unity among the branches of the Christian Church, and pledged itself to co-operate with brethren everywhere to secure that desired end; commended to all organizations of working men attendance upon and co-operation with the Christian Church; and reaffirmed the conviction "that total abstinence for the individual and prohibition of the traffic in intoxicants by the States are the only wise methods of dealing with the drink problem."

The Woman's Centenary Association had received \$6,033. A report was made at the annual meeting concerning the Glasgow Mission, Scotland.

URUGUAY, a republic in South America; area, 69,835 square miles. By the census of Nov. 18, 1889, the population is 700,000, that of the department of Montevideo being 214,682, and of the city of the same name 170,000.

Government.—The President is Gen. Máximo Tajes. The Cabinet is composed of the following ministers: Interior, Dr. J. Herrera y Obes; War and Navy, Col. P. de Leon; Justice, Public Worship, and Instruction, Dr. M. Berindague; Foreign Affairs, Dr. J. Garcia Lagos; Finances, Dr. J. Varela. The American Consul at Colonia is Benjamin D. Manton; at Montevideo, Edward J. Hill. The Uruguayan Consul at New York is E. Estrázulas; at San Francisco, J. G. Grace.

Army and Navy.—The strength of the standing army was 3,234 men, in 1888, commanded by 221 officers. There is a police force of 3,200, and a National Guard of 20,000 men. The navy consists of 7 small steamers, 3 gunboats, and 1 sloop-of-war.

Finances.—On Jan. 1, 1889, the national indebtedness was as follows: Foreign debt, \$55,691,212; home debt, \$19,800,000; Government railroad bonds, \$3,235,378; paper money in circulation, \$1,005,818, constituting a total debt of \$79,732,408. The budget for 1888 showed the income to be \$14,739,000, and the outlay \$13,422,000. In 1886 only four banks were in operation. In 1887 and 1888, 28 new banks and other stock companies were formed, with a joint capital of \$78,240,000. On July 1, 1889, the five banks of issue had a circulation outstanding of \$15,274,476, backed by a cash capital on hand of \$14,841,460. Baring Brothers & Co., London, negotiated in the spring a 6-per-cent. loan for the

city of Montevideo for £1,276,595 at par, to run twenty years. This is the first money the city has borrowed.

The amount of duties collected at the Montevideo custom-house during the first eleven months of 1889 was \$10,098,000, being \$1,944,841 in excess of the revenue derived from this source during the corresponding period of 1888.

Railroads.—On July 1, 1889, there were 642 kilometres of railway in operation. The Government has guaranteed an interest of 6 or 7 per cent. on the capital invested in lines that, when completed, will measure 3,614 kilometres, and the total capital will be \$93,902,087.

Telegraphs.—The length of lines in operation in 1889 was 3,165 kilometres, inclusive of three submarine cables. The telephone line connecting Montevideo with Buenos Ayres was opened on Oct. 26, 1889.

New Steamship Line.—The "Union Argentino-Uruguayana," of Buenos Ayres and Montevideo, is a steamship company. Its fleet will consist of 15 transatlantic steamers, of from 4,500 to 6,500 tons burden, with a minimum speed of eighteen miles an hour, and 15 steamers of from 500 to 1,000 tons burden, with a speed of from twelve to twenty miles an hour. Four steamers are for the Argentine service to the United States, sailing twice a month.

Postal Service.—The number of post-offices in 1888 was 465; they had handled in 1887 the following items of mail matter: Ordinary letters, 4,742,271; registered letters, 142,400; Government dispatches, 306,869; postal cards, 21,917; newspapers, 11,756,171; sample packages, 187,717. The receipts were \$197,823, and the expenses, \$187,762.

Commerce.—Uruguayan trade has developed during the past quinquennium of 1884 to 1888 as follows, reduced to millions of dollars:

YEARS.	Import.	Export.
1884.....	24.6	24.8
1885.....	25.3	25.5
1886.....	20.2	23.8
1887.....	24.6	18.7
1888.....	29.5	28.0

In 1889 the exports to the United States were valued at \$2,986,964; the imports thence at \$2,027,883. In no country south of the United States has the expansion of foreign trade during the interval named been so great.

Dating from Jan. 30, 1889, the export duty was abolished except on unhewn stones, sand, and cattle in herds.

Immigration.—The number of immigrants retained during six consecutive years has been as follows: In 1883, 4,997; in 1884, 5,914; in 1885, 8,950; in 1886, 5,749; in 1887, 6,615; in 1888, 8,851.

Viticulture.—In 1889 there were planted 2,000,000 stalks of domestic vines and as many Chilean. There were in all 227 vineyards, covering 1,730 hectares.

UTAH, a Territory of the United States, organized in 1850; area, 84,970 square miles; population, according to the last decennial census (1880), 143,963; capital, Salt Lake City.

Government.—The following were the Territorial officers during the year: Governor, Caleb

W. West, succeeded by Arthur L. Thomas; Secretary, William C. Hall, succeeded by Elijah Sells; Treasurer *de facto*, James Jack; Auditor *de facto*, Nephi W. Clayton; Commissioner of Common Schools, P. L. Williams, succeeded by Jacob S. Boreman; Chief Justice of the Supreme Court, Elliott Sanford, succeeded by Charles S. Zane; Associate Justices, Henry P. Henderson, Jacob S. Boreman, succeeded by Thomas J. Anderson, John W. Judd, succeeded by John W. Blakburn.

On Jan. 6, 1890, the litigation over the Territorial offices of Auditor and Treasurer was ended by a decision of the United States Supreme Court in the cases of Clayton *vs.* the Territory and Jack *vs.* the Territory. The main question at issue was the validity of an act of the Territorial Legislature of 1878, which provided that the Territorial Auditor and Treasurer, should be elected by the qualified voters of the Territory at each general election. Under this act, Nephi W. Clayton was elected Auditor and James Jack, Treasurer, in August, 1880. At that time they were already in possession of their respective offices, and they have held them since that time, claiming that their successors have not been duly elected. The organic act creating the Territory provides that "the Governor shall nominate, and, by and with the advice and consent of the Legislative council, appoint all officers not herein otherwise provided for." This section applies to the offices in question, and, as it was a part of the fundamental law, it was claimed by the successive Territorial Governors that it could not be changed by legislative enactment. In 1886 the Governor, therefore, sent several nominations for these offices to the Legislative Council, but that body refused to take action thereon, and after the adjournment of the Legislature, he nominated Arthur Pratt to be Auditor and Bolivar Roberts to be Treasurer, until the next meeting of the Legislative Assembly. The appointees were refused their offices by the incumbents *de facto*. The same nominations were sent to the Legislature of 1888 and, being ignored, were again made by the Governor after its adjournment. The appointees were again refused their offices. The Supreme Court of the Territory in 1886 decided against the claims of the incumbents, and from this decision the appeal was taken to the United States Supreme Court. The decision of this court was in effect that the act of 1878 was in direct contravention of the organic act of the Territory, and was, therefore illegal and invalid, and that Clayton and Jack had no claim to the offices which they had already held for about ten years.

Finances.—For 1888 the tax levy for Territorial and school purposes was three fifths of one per cent., yielding a revenue of \$282,393.94, or \$55,032.43 greater than the revenue for 1887. The assessed valuation for 1888 was \$47,065,656.66, and for 1889 it was \$51,917,312.38. The latter sum includes real property valued at \$35,925,725.48 and personal property valued at \$15,750,855.24. The valuation, for purposes of taxation, of Salt Lake County, including Salt Lake City, for the fiscal year 1889 was: Real property, \$15,299,538.66; personal property, \$5,430,748; total, \$20,730,286.66.

Education.—The tax collected for support of schools does not pay half the expenses; consequently, the pupils must pay tuition fees or the schools be closed. In many of the poorer districts the children are denied school privileges for many months of the year. There is little prospect that this will be changed, as the Mormon people, with almost entire unanimity, are quietly preparing for denominational schools, in which their children may be taught Mormon theology, in addition to the ordinary branches of education. State or county academies have been established under church auspices, and in some of the school districts the Mormon children have been withdrawn from the public schools and placed in church schools. There are also private denominational schools in the Territory of different Christian churches. During the year ending June 30, there were 93 such schools, employing 230 teachers and attended by 7,961 pupils. Of 2,490 pupils enrolled in the Congregational schools, 1,035 were of Mormon parents; of 1,396 enrolled in the Methodist schools, 291 were of Mormon parents. The sixteenth and thirty-sixth sections of each township, set apart by Congress for the use of the public schools, have all been located; but the land is of little value without water, and the water supply has all been appropriated. The total amount of the grant is \$46,080 acres, having a possible value of \$1.25 an acre.

The Territorial University has prospered during the year. A report for the two years ending Oct. 31 shows receipt of \$141,397.20 and disbursement of \$136,195.75. The site for the proposed Agricultural College was fixed at Logan City, and construction was begun in June. The building was nearly completed at the close of the year.

Prisons.—At the last session of Congress an appropriation of \$95,000 was made for new buildings at the Utah Penitentiary, but the money has not been applied to the purpose for which it was granted. The present accommodations are insufficient.

The building for the Reform School was completed and opened on Oct. 31, the cost for construction and equipment being about \$75,000. Up to the close of the year there had been 13 commitments.

Mining.—The mineral product of the Territory for 1888, as estimated by Wells, Fargo & Co., is summarized as follows: 2,886,816 pounds copper, valued at \$288,681.60; 44,567,157 pounds unrefined lead, valued at \$1,203,313.23; 6,178,855 ounces fine silver, valued at \$5,787,527.85; 13,886 ounces fine gold, valued at \$277,720; total export value, \$7,557,242.68. The mining industry has been generally prosperous. Several important developments have been made in Park City and in other mining camps.

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Stock-Raising.—For 1889 the following live stock was included in the assessment rolls: Horses, \$75,723; cattle, 199,567; sheep, 1,128,113. It is estimated that these figures represent about 50 per cent. of the actual number of horses, cattle, and sheep in the Territory. Grazing and mountain lands include about seven eighths of the entire land area.

Indians.—There are two Indian reservations in the Territory, the Uintah and Uncompahgre, at which several thousand Indians maintain their tribal relations. Besides these there are about 1,500 Indians in the Territory, chiefly Piutes and Shosones. Of these scattered bands the Governor says: "Most of them exist by begging and by spasmodic attempts at hunting and fishing. They lack spirit and are uncared for; they greatly need schools and missionaries and to be taught how to take care of themselves and to till the soil."

Decision.—In December, Judges Anderson and Zane, of the Territorial Supreme Court, rendered decisions refusing to grant naturalization to alien Mormons. As the Mormon Church has relied upon alien immigrants to sustain its political power, these decisions are a serious set-back to that organization.

Mormonism.—The following is an extract from the last report of the Utah Commission: "Polygamy is not, at the present time, openly practiced, except, perhaps, in a few remote and out-of-the-way places, but the non-Mormon element insists that plural marriages are solemnized clandestinely and practiced secretly in the larger centers and throughout the Territory." For the year ending in September there were 357 convictions in the Territory for bigamy, adultery, fornication, and unlawful cohabitation; but only a small proportion of these were for bigamy.

Political.—In August an election for members of the Legislative Assembly of 1890 was held. The total vote, as cast for members of the Council, were 20,496, of which 14,161 votes were Mormon, 6,136 Gentile, and 199 scattering. The Gentiles elected 2 of the 12 members of the Council, and 6 of the 24 members of the House. At this election for the first time the Gentiles carried Salt Lake City by 41 majority, and also the city of Ogden, which had been carried for the first time by the same party at the municipal election in the previous February. "These notable victories," says the Governor, "awakened the wildest enthusiasm, and were hailed with delight by the people of the country, and many expressed the opinion that the Mormon power was at an end in Utah. I regret to say they were in error. The time may come when the Gentiles will be in the majority, but it will be many years hence. In 23 of the 24 counties, and in 256 of the 278 election precincts the Gentiles were in the minority at the last election."

V

VENEZUELA, a republic in South America. Area, 1,539,398 square kilometres; population, in 1886, 2,198,320.

Government.—The President is Dr. Pablo Rojas Paúl, whose term will expire on Feb. 22, 1890. The Vice-President is Dr. S. Pacheco. The Cabinet is formed of the following ministers: Interior and Justice, Dr. A. Palacios; Foreign Affairs, Dr. A. Parejo; Public Works, V. Coronado; War and Navy, Gen. N. Rangel; Public Credit, G. J. Pachano; Public Works, Dr. J. M. Tebar; Public Instruction, Gen. M. A. Silva Gandolphi; Finances, J. M. Lares. The United States Minister at Carácas is William L. Scruggs. The American Consul at Ciudad Bolívar is George F. Underhill. The Venezuelan Minister at Washington is Don Nicanor Bolet Peraza. The Consul-General at New York is Dr. Pedro Vicente Mijares.

Finances.—The consolidated 4-per-cent. bonded debt amounts to £3,753,420. The interest is payable at Carácas at 25-25 francs the pound sterling. The actual revenue of the Government in 1886-'87 was 33,686,246 francs; the expenditure, 28,644,576.

Army and Navy.—The strength of the standing army is fixed at 2,000. The navy has 3 steamers, 1 schooner, and 1 school ship.

Communications.—During the fiscal ended June 30, 1888, the 161 post-offices handled 3,665,648 items of mail matter, the expenses being 612,875 francs.

On July 1, 1888, the length of telegraph lines in operation was 4,738 kilometres, the number of offices was 96, and the expenses 720,748 francs.

Venezuela began railroad building so late that for two years past the most energetic efforts have had to be made to make up for the time lost and give the country a system adequate to its resources. The development of the system is making good headway. The first line built was the one connecting the capital, Carácas, with its port, La Guayra, 33 kilometres. This was opened on July 1, 1883. In 1884 the line between Maiquetia and Macato was opened, the former being 4 kilometres east of La Guayra, and the latter the same distance west. The railroad that leads from the port of Carenero to Rio Chieo measures 30 kilometres, and has been built in two sections, one of which, from the Carenero to the Rio Tuy, was opened on Dec. 31, 1885, and the other, as far as Rio Chico, was finished in 1887. The Central Railroad, intended to connect the capital with Valencia, touches at Santa Lucia and traverses the valley of the Tuy. The first section, 10 kilometres, was opened in September, 1886. Work continues between Petare and Santa Lucia. The line between La Ceiba and La Sábana de Mendoza, 40 kilometres, was opened early in 1887, and the one between Carácas and Antinona, 8 kilometres, in April, 1887. The railway that is to connect Puerto Cabello with Valencia, 53 kilometres, will soon be finished. Construction was begun on the line between La Fria and El Brazo, 80 kilometres, and from La Luz to Barquisimeto, 75 kilometres. Concessions have

been granted for the construction of the following lines: Barquisimeto to Bruzual, 50 kilometres; Coro to La Vela, 15; Cojoro to Maracaibo, 155; Mérida to Lake Maracaibo, 175; San Cristóbal to the river Uribante, 50; Carácas to Barcelona and Soledad, 600; Guacipati to the Orinoco river, 200; San Felipe to Bruzual, 175; and Carácas to San Carlos, Samora, 102. On all the railroads named the Government guarantees 7 per cent. interest.

Commerce.—Venezuela imported in 1888 from England \$3,850,944; France, \$1,222,273; Spain, \$14,939; and exported to those countries respectively \$572,207, \$5,946,520, and \$822,245. The American trade in 1889 was as follows: Import into the United States, \$10,392,569; domestic export to Venezuela, \$3,703,705. There is a steady increase in both directions, due to the rise in coffee.

VERMONT, a New England State, admitted to the Union in 1791; area, 9,565 square miles; population, according to the last decennial census (1880), 332,268; capital, Montpelier.

Government.—The following were the State officers during the year: Governor, William P. Dillingham, Republican; Lieutenant-Governor, Urban A. Woodbury; Secretary of State, Charles W. Porter; Treasurer, William H. Dubois; Auditor, E. Henry Powell; Superintendent of Education, Edwin F. Palmer; Inspector of Finance, Savings Banks, and Trust Companies, Luther O. Greene; Chief Judge of the Supreme Court, Homer E. Royce; Assistant Judges, Jonathan Ross, H. Henry Powers, John W. Rowell, Russell S. Taft, James M. Tyler, and Wheelock G. Veazey, who resigned in September to accept an appointment by President Harrison to the Interstate Commerce Commission, and was succeeded by Loveland Munson.

Finances.—For the year ending July 31 the total receipts, including \$88,062.30 on hand at the beginning of the year and \$258,165 of money borrowed, were \$695,554.72. The expenditures, including \$115,000 of loans repaid, amounted to \$623,391.31, leaving on hand \$36,163.41 on July 31. The valuation of real property for taxation in 1889 was \$111,684,680, and of personal property \$50,223,750. The valuation for 1888 was: Real, \$110,675,718; personal, \$49,911,339. For 1889 the rate of taxation for State purposes was 20 cents on each \$100.

Minerals.—The State Geologist makes this year the following report regarding the quarrying and other allied industries of the State:

Forty marble concerns report as capital invested, \$5,805,400. The number of men employed was 2,731, to whom was paid \$918,120. The output was 3,863,500 cubic feet, valued at \$2,497,128. Forty-three granite concerns report as invested \$555,000. The number of men employed was 1,197, who received \$498,956. The output was 364,961 cubic feet, valued at \$771,727. Nineteen slate concerns report as capital invested \$607,000. The number of men employed was 802, who received \$299,403. The output was 86,442 squares of roofing slate, and 1,842,218 square feet of mill stock, valued at \$483,113. Eighteen lime concerns report as invested capital \$278,950. The num-

ber of men employed was 337, who received \$84,426. The output was 523,725 barrels, valued at \$425,923.75. Ten brick concerns report as invested capital \$42,360. The number of men employed was 139, who received \$15,850. The output was 5,246 M., valued at \$81,958.89. Four soapstone concerns report an invested capital of \$52,000. The number of men employed was 98, who received \$35,200. The output was 3,020 tons, valued at \$66,000. The aggregate statistics of these six industries are as follow: Capital, \$7,330,710; number of men, 5,304; wages, \$1,851,955; value of output, \$4,275,850.64.

Immigration.—The commissioner appointed under the act of 1888 to devise means for developing the agricultural and manufacturing interests of the State issued on Aug. 5 a letter to the listers of each town, in order to ascertain how much abandoned agricultural land could be purchased at a nominal price, and where large contiguous tracts of such lands could be found. His plan was to secure colonies of Swedes to settle on these tracts. If the land could be procured at \$2 or \$3 an acre, he believed such colonies could be induced to settle thereon. Replies to this circular showed that in many parts of the State such tracts could be secured at the price mentioned, and the commissioner made arrangements by which a well-known Swedish immigration agent undertook, as a beginning, to bring over forty or fifty Swedish families in the spring of 1890. Lands in Orange, Windsor, and Windham counties were secured.

VIRGINIA, a Southern State, one of the original thirteen, ratified the Constitution June 25, 1788; area, 42,450 square miles; population, according to the last decennial census (1880), 1,512,565; capital, Richmond.

Government.—The following were the State officers during the year: Governor, Fitzhugh Lee, Democrat; Lieutenant-Governor, John E. Massey; Secretary of State, H. W. Flournoy; First Auditor, Morton Marye; Second Auditor, Frank G. Ruffin; Treasurer, A. W. Harmon; Attorney-General, Rufus A. Ayers; Superintendent of Public Instruction, James L. Buchanan; Commissioner of Agriculture, Thomas Whitehead; Railroad Commissioner, James C. Hill; President of the Supreme Court, Lunsford L. Lewis; Judges, T. T. Fauntleroy, Robert A. Richardson, Benjamin T. Lacy, and Drury A. Hinton.

Finances.—The Governor, in his message, makes the following report concerning the State debt:

If all of the outstanding obligations of the State were funded under the act approved Feb. 14, 1882, with the "Wickham amendment" attached, except the bonds held by institutions of learning, the interest upon which is now paid by special legislation, the principal of the debt would be \$21,855,812.74, the annual interest upon which would be \$655,074.39. (The consol coupons outstanding from July, 1885, to January, 1890, which are debarred from being funded by this Wickham amendment, and which are not included in the foregoing estimate, amount to \$3,740,019; 10-40 coupons for the same period—namely, July, 1885, to January, 1890—amount to \$863,821.50, making a total face value of \$4,603,840.50.) This indebtedness of \$21,835,812.74 can be reduced by the following items: Bonds held by the Commissioners of the Sinking Fund which can be canceled, \$2,280,643.60. The stock held by the State in Richmond, Fredericksburg, and Potomac Railroad can be sold and with the proceeds new 3-per-cent. bonds can be pur-

chased to the extent of \$859,926.47. The sinking fund has in cash \$126,014.28, which will purchase of new 3's at 68 \$185,315.12. The stock held by the State in the Chesapeake and Ohio Railway it is thought can be sold for a sum which will purchase of new 3's, \$349,843.53. The United States holds old unfunded bonds, which, with interest thereon, funded into new 3-per-cent. bonds represent \$548,594.52. The State has a claim against the United States which will offset this indebtedness. It is estimated that old bonds and interest thereon have been lost and will not be presented, representing in new 3's the sum of \$831,844.76. The aggregate of the above amounts to \$5,056,173. Deducting this from \$21,835,812.74, there will be left \$16,779,639.74, which would carry an annual interest at 3 per cent. of \$503,389.20.

Under the present law, as above shown, if it should be accepted by all the bondholders, the State would be called upon to pay in annual interest \$503,389.20, or \$143,128.12 more than is at present available, unless new sources of revenue are found by the State.

The coupons received into the Treasury on judgments for taxes during the fiscal year ending Sept. 30, amounted to \$214,580. During the previous year the amount was \$258,938.

The amount of tax coupons now maturing annually is \$1,008,500. The amount of interest on the debt paid this year from the Treasury was \$136,500, paid on the new 3-per-cent. bonds, amounting to \$4,550,000, now in the hands of the public; \$142,000, paid to colleges, being the full interest on bonds held by them; \$37,374 paid on bonds held by the literary fund, and \$214,580 for tax-receivable coupons of the old unadjusted debt, forced upon the Treasury, making a total interest account of \$530,454.

No progress was made during the year in the contest before the courts, between the State and the bondholders. The arguments in the cases before the United States Supreme Court, to determine the constitutionality of the "coupon-crusher" acts, were postponed from October, 1889 to 1890.

Education.—For the school year 1887-'88, the Superintendent reports the following figures regarding public schools: White schools, 5,154; colored schools, 2,115; total, 7,269; white teachers, 5,373; colored teachers, 1,909; average monthly salary of male teachers, \$31; average monthly salary of female teachers, \$26.40; children of school age (according to census of 1885), white, 345,024; colored, 265,347; white pupils enrolled, 211,449; colored pupils enrolled, 118,831; total number enrolled, 330,280; average daily attendance, white pupils, 124,994; average daily attendance, colored pupils, 64,422; number of school-houses, 6,205; built during the year, 309; gross expenditure for public schools, \$1,558,352.70.

For the school year 1888-'89, the expenditure for schools was, in round numbers, \$1,620,000; the number of pupils enrolled increased to 336,948, and the number of schools to 7,410.

Charities.—The number of patients in the four asylums of the State was as follows on Oct. 1: Eastern Lunatic, 397; Western Lunatic, 677; Southwestern Lunatic, 371; Central Lunatic, 581; total, 2,026. These institutions are filled, and 200 white and nearly 100 colored lunatics are cared for by the State outside.

Penitentiary.—The whole number of prisoners on Oct. 1 was 1,081, distributed in the following proportion between the races: White men, 187; white women, 4; total, 191. Colored men, 815; colored women, 75; total, 890. The Abingdon Coal and Iron Railroad Company are working 32; the Farmville and Powhatan Rail-

road Company, 89; the Roanoke Southern Railroad Company, 91; and the South Atlantic and Ohio Railroad Company, 54. The financial condition of the institution exhibits a gain of \$5,685.82 during the year.

Militia.—The State has enrolled, armed, and uniformed 2,786 volunteers—2,270 white and 516 colored. The assistance given by the State consists of the proceeds of half of 1 per cent. of all her revenues derived from regular sources of income except the School fund. The amount thence accruing for the year ended Oct. 1, 1889, was \$9,644.86.

Political.—A State convention of the Democratic party was held at Richmond on Aug. 15. There were several candidates for the gubernatorial nomination. On the first ballot Philip W. McKinney received 595 votes, Richard F. Beirne 361, Charles T. O'Ferrall 307, J. Hoge Tyler 139, S. W. Venable 73, John T. Harris 57. Before the end of the second ballot McKinney was nominated by acclamation. For Lieutenant-Governor the choice of the convention was J. Hoge Tyler, and for Attorney-General R. Taylor Scott. The platform included the following:

We will care for and support the public schools until every child shall be able to secure the benefits of education. To this end we favor liberal appropriations by the Federal Government, apportioned among the States in the ratio of the illiteracy of their population.

The Democratic party regards the encouragement and fostering of agriculture as all important to the prosperity of Virginia, and that securing valuable emigrants is necessary to the full success of agriculture in the State.

The Democratic party will foster the oyster industry of Virginia for the benefit of her own citizens, and favors the enforcement of the policy of preserving to her citizens the free use of all natural oyster rocks, beds, and shoals as regulated by law.

We recommend a revision of the laws imposing taxes on land, with a view to relieving it of any unjust or unequal taxation now imposed upon it.

The Republican State Convention was held at Norfolk on Aug. 22, and resulted in the nomination of ex-United States Senator William Mahone for Governor, C. C. Slemp for Lieutenant-Governor, and W. S. Lurty for Attorney-General. The platform contains the following:

Our party will foster the oyster and fishing interests of our State and protect the natural oyster beds for the sole use of our own people.

We are for the repeal of all laws, State and municipal, whereby our farmers and truckers are required to pay special taxes for the sale of their products in the cities of the Commonwealth.

Our party only demands the security of life, liberty, and the pursuit of happiness for all dwellers in the Old Dominion, and that all shall be allowed to exercise their political, civil, and religious relations in accordance with the highest civilization of the age.

Whereas there is no other public question which so

directly and largely involves the progress and prosperity of Virginia and her people or so seriously concerns the good name of this Commonwealth as an honorable and conclusive settlement of the State debt, which the managers of the Democratic party for four years have had absolute power and favorable opportunity to do, and have meanwhile contented themselves with measures that have only embarrassed the creditors, entrapped many of our citizens into vexatious and costly difficulties, and generally aggravated a situation already intolerable; and whereas the policy of these managers in the treatment of this grave and momentous issue has been to postpone and procrastinate, thereby adding millions to the liabilities that hold in mortgage all the property of the State, and which in the end must be met and satisfied; and whereas it is known that there is an opportunity to effect the debt settlement, so devoutly desired; therefore the Republican party of Virginia solemnly pledges itself—

That if it be intrusted with the necessary power by the people it will settle the debt and the debt question wholly, finally, and promptly, upon terms that will not add to the annual burdens of the people, and will yet leave the Commonwealth ample means for the current expenses of a frugal administration for a general maintenance of our admirable system of public free schools, and for munificent provision for our charitable institutions and our disabled soldiers.

The Prohibitionists nominated a State ticket at Lynchburg on July 17, with Thomas E. Taylor as the candidate for Governor, W. J. Shelburne for Lieutenant-Governor, and James P. McTeer for Attorney-General. The canvass excited great interest throughout the nation. For two months the two gubernatorial candidates were upon the stump, visiting in that time nearly every part of the State. There was a strong faction of the Republican party, of which Hon. John S. Wise and ex-Governor William E. Cameron were leaders, which was bitterly opposed to the leadership of Mr. Mahone. They refused all offers of conciliation, and finally came out in open rebellion. A conference or convention of disaffected elements was called by them to meet at Richmond on Oct. 2. About 200 delegates were present, a series of addresses in denunciation of the ex-Senator were made, and fifteen resolutions were adopted, each containing an accusation against Mr. Mahone, culminating in the fourteenth, which declared "That the defeat of William Mahone is essential to the salvation of the Republican party."

This disaffection made it impossible for the Republican ticket to win, and although the ex-Senator made a vigorous canvass, the majority against him at the November election was large. For Governor, McKinney received 162,654 votes, Mahone 120,477, and Taylor 897. Nearly the same vote was cast for Lieutenant-Governor and Attorney-General. At the same time members of the Legislature were chosen as follows: Senate, Democrats 39, Republicans 9; House, Democrats 89, Republican 15.

W

WASHINGTON, a Territory of the United States until Nov. 11, 1889, when it was admitted to the Union as a State; area, 69,180 square miles; population, according to the last decennial census (1880), 75,116; capital, Olympia.

Government.—The following were the Territorial officers until Nov. 11: Governor, Eugene Semple, succeeded by Miles C. Moore; Secretary, N. H. Owings, succeeded by O. C. White; Treasurer, Frank I. Blodgett; Auditor, John M. Murphy; Attorney-General, J. B. Metcalfe; Superintendent of Public Instruction, J. H. Morgan; Chief-Justice of the Supreme Court, Thomas Burke, succeeded by C. H. Hanford; Associate Justices, Frank Allyn, William G. Langford, and Lucius B. Nash, succeeded by W. H. Calkins. The following State officers were chosen on Oct. 1, and assumed office on Nov. 11: Governor, Elisha P. Ferry, Republican; Lieutenant-Governor, Charles E. Laughton; Secretary of State, Charles Weir; Treasurer, A. A. Lindsley; Auditor, T. M. Reed; Attorney-General, W. C. Jones; Superintendent of Public Instruction, W. D. Bryan; Commissioner of Public Lands, W. R. Forrest; Chief Justice of the Supreme Court, T. J. Anders; Associate Justices, Elmore Scott, R. O. Dunbar, T. L. Stiles, J. P. Hoyt.

Admission to the Union.—On Jan. 2 a convention of delegates from all parts of the Territory met at Ellensburg to express the desire of the people for admission to the Union. An appeal to Congress and an address to the people were adopted. A central committee for the Territory was appointed, whose duty it should be to superintend the circulation of petitions asking for admission, and to forward all such to Washington.

The committee appointed by this convention had scarcely begun its work when the omnibus admission bill passed both Houses of Congress and received the signature of President Cleveland. By the provisions of this act an election should be held throughout the Territory on May 14, to select delegates to a constitutional convention, which should meet at Olympia on July 4. If the Constitution framed by this convention should be adopted by the people at an election on Oct. 1, Washington should become a State thereunder by proclamation of the President. On admission, the new State should become entitled to the sixteenth and thirty-sixth sections in each township, or sections in lieu thereof, the proceeds from the sale or lease of which should form a permanent School fund. This fund should also receive 5 per cent. of the net proceeds of all unappropriated public lands in the State thereafter sold by the Federal Government. Fifty sections of the public lands were given to aid in erecting public buildings at the State capital, and seventy-two sections for university purposes. In addition, the following grants were made: 90,000 acres for agricultural colleges, 100,000 acres for a scientific school, 100,000 acres for normal schools, 100,000 acres for buildings at the State capital, and 200,000 acres for State charitable, penal, and reformatory

institutions. There was also a grant in aid of the Penitentiary.

In compliance with the Admission act, the Territorial Governor on April 15 issued his proclamation ordering a special election on May 14 to choose delegates to a constitutional convention. At this election seventy-five delegates were chosen, a majority of whom were Republicans. The convention met at Olympia on July 4, and organized by selecting John P. Hoyt as president. It remained in session through Aug. 22, and perfected a Constitution for the prospective State of Washington, of which the following are the more important features:

The legislative power shall be vested in a Senate and a House of Representatives, the latter to consist of not fewer than 63 nor more than 99 members, the former to contain not more than one half nor less than one third as many members as the latter. Senators shall be elected for four years (half of the number retiring every two years), and Representatives for two years.

The first Legislature shall meet on the first Wednesday after the first Monday in November, 1889. The second Legislature shall meet on the first Wednesday after the first Monday in January, 1891, and sessions of the Legislature shall be held biennially thereafter, unless specially convened by the Governor, but the times of meeting of subsequent sessions may be changed by the Legislature. After the first Legislature, the sessions shall not be more than sixty days.

The Legislature shall never authorize any lottery or grant any divorce.

Private and special legislation is forbidden.

After Jan. 1, 1890, the labor of convicts shall not be let out by contract, and the Legislature shall by law provide for the working of convicts for the benefit of the State.

The ownership of lands by aliens is prohibited, except where acquired by inheritance, under mortgage, or in good faith in the ordinary course of justice in the collection of debts; and all conveyances of lands hereafter made to any alien directly or in trust for such alien shall be void: *Provided*, That the provisions of this section shall not apply to lands containing valuable deposits of minerals, metals, iron, coal, or fire-clay, and the necessary land for mills and machinery to be used in the development thereof and the manufacture of the products therefrom. Every incorporation the majority of the capital stock of which is owned by aliens shall be considered an alien for the purpose of this prohibition.

The Executive department shall consist of a Governor, Lieutenant-Governor, Secretary of State, Treasurer, Auditor, Attorney-General, Superintendent of Public Instruction, and a Commissioner of Public Lands, who shall be severally chosen for four years. The Governor may veto separate sections of any bill.

The salary of the Governor shall not exceed \$6,000, and of the Lieutenant-Governor \$3,000.

The judges of the Supreme Court shall be elected by the qualified electors of the State at large at the general State election, and shall hold office for six years.

Any judge of any court of record, the Attorney-General, or any prosecuting attorney may be removed from office by joint resolution of the Legislature in which three fourths of the members elected to each House shall concur.

All male persons of the age of twenty-one years or over, possessing the following qualifications, shall be entitled to vote at all elections: They shall be citizens of the United States; they shall have lived in the

State one year, and in the county ninety days, and in the city, town, ward, or precinct thirty days immediately preceding the election at which they offer to vote; *Provided*, That Indians not taxed shall never be allowed the elective franchise: *Provided, further*, That all male persons who at the time of the adoption of this Constitution are qualified electors of the Territory shall be electors.

The Legislature may provide that there shall be no denial of the elective franchise at any school election on account of sex.

The Legislature shall provide for such method of voting as will secure to every elector absolute secrecy in preparing and depositing his ballot.

General elections shall be held on the first Monday of November in the even-numbered years.

The State debt is limited to \$400,000.

The Legislature shall provide for a general and uniform system of public schools. The public-school system shall include common schools, and such high schools, normal schools, and technical schools as may hereafter be established. But the entire revenue derived from the Common-School fund, and the State tax for common schools shall be exclusively applied to the support of the common schools. The principal of the Common School fund shall remain permanent and irreducible.

The Legislature shall pass laws establishing reasonable maximum rates of charges for the transportation of passengers and freight.

The consolidation of competing lines of railroad is forbidden.

Monopolies and trusts shall never be allowed in this State.

The use of the waters of this State for irrigation, mining, and manufacturing purposes shall be deemed a public use.

The right of trial by jury shall remain inviolate, but the Legislature may provide for a jury of any number less than twelve in courts not of record, and for a verdict by nine or more jurors in civil cases in any court of record, and for waiving of the jury in civil cases where the consent of the parties interested is given thereto.

The seat of government is temporarily fixed at Olympia, until some one place shall receive a majority of the votes of the people, either at the election for the adoption of this Constitution or at a subsequent general election. When the permanent seat is thus determined, it shall not be changed except by a vote of two thirds of the electors voting at a general election.

Amendments to this Constitution must be passed by a two-third vote of each House of the Legislature, and must receive a majority vote of the electors at the next succeeding general election.

The convention provided that the following articles should be submitted to a vote of the people separate from the Constitution:

"All persons, male and female, of the age of twenty-one years or over possessing the other qualifications provided by this Constitution shall be entitled to vote at all elections."

"It shall not be lawful for any individual, company, or corporation within the limits of this State to manufacture, or cause to be manufactured, or to sell, or offer for sale, or in any manner dispose of any alcoholic, malt, or spiritous liquors, except for medicinal, sacramental, or scientific purposes.

Election. In order that this Constitution, if adopted, might take effect at once, it was provided that an election to the offices therein created should be held at the time of the election upon the Constitution itself. Party conventions were therefore called.

The Republican State Convention met at Walla Walla on Sept. 5 and nominated the following ticket: For Governor, Elisha P. Ferry; Lieutenant-Governor, Charles E. Laughton; Secre-

tary of State, Chas. Weir; Auditor, Thomas M. Reed; Treasurer, A. A. Lindsley; Attorney-General, W. C. Jones; Superintendent of Public Instruction, R. B. Bryan; Commissioner of Public Lands, W. T. Forrest; Justices of the Supreme Court, T. J. Anders, Theodore L. Stiles, Elmore Scott, John P. Hoyt, and R. O. Dunbar; Member of Congress, John L. Wilson. The platform contains the following:

We pledge the co-operation of our congressional representations with those of the State of Oregon to secure the speedy opening of the Columbia river to navigation.

We are opposed to the formation of trusts.

We demand the rigid enforcement of the Chinese exclusion act.

We believe it to be the duty of the State to provide a rigid system of inspection of mines and factories.

We recognize the right and duty of labor to organize for its own protection, and heartily sympathize with every movement which has for its object the moral, material, or intellectual advancement of any portion of our fellow-citizens.

We favor the opening to settlement of all Indian reservations in the State, having a due regard for the rights of the Indians.

The Democratic State Convention was held at Ellensburg on Sept. 10 and the following candidates were nominated: For Governor, Eugene Semple; Lieutenant-Governor, L. H. Plattor; Secretary of State, W. H. Whittlesey; Treasurer, M. Kaufman; Auditor, John M. Murphy; Attorney-General, H. J. Snively; Superintendent of Public Instruction, J. H. Morgan; Commissioner of Public Lands, M. Z. Goodell; Judges of the Supreme Court, William H. White, B. L. Sharpstein, John P. Judson, John B. Reavis, and Frank Ganahl; Member of Congress, T. C. Griffiths. A long platform was adopted, which arraigns the Republicans for extortion, duplicity, and fraud; declares in favor of free schools and the appropriation of public lands for public purposes; denounces the Chinese exclusion act as administered by Republicans; favors the opening of Columbia river; favors the building of forts for the protection of Pacific coast harbors; and denounces the Republican State platform.

At the election on Oct. 1 the Republican candidates were elected by majorities varying from 8,000 to 10,000. For Governor, Ferry received 33,711 votes and Semple 24,732; for Member of Congress, Wilson had 34,039 votes and Griffiths 24,492. Members of the first State Legislature were chosen at the same time as follow: Senate—Republicans 34, Democrat 1; House—Republicans 62, Democrats 8. On the question of adopting the proposed Constitution, the vote was 40,152 for adoption and 11,879 against it. The proposed article prohibiting the manufacture and sale of intoxicating liquor was rejected by a vote of 19,546 in its favor to 31,487 against it. The proposed article extending the right of suffrage to women was rejected by a vote of 16,527 for and 35,613 against it. There were 25,490 votes cast for Olympia as the permanent capital of the State, 14,711 for North Yakima, 12,833 for Ellensburg, 607 for Centralia, 314 for Yakima, 130 for Pasco, and 1,088 scattering.

The result of this election having been officially notified to President Harrison on Nov. 11, he issued his proclamation admitting Washington to the Union.

Legislative Session.—The Legislature, elected in October, assembled at Olympia on Nov. 7; but at that time the Territory had not been admitted to the Union, and an adjournment was taken until Nov. 11, when, on receiving news of the President's admission proclamation, a permanent organization was effected. On Nov. 19 John B. Allen and Watson C. Squire, both Republicans, were elected United States Senators for the new State by the following votes: Senate—Allen 25, George Turner 6, scattering 3; House—Allen 46, Turner 14, Charles S. Voorhees (Democrat) 8, scattering 1. Senate—Squire 30, J. W. Sprague 3, Voorhees 1; House—Squire, 46, Sprague 10, Griggs 8, scattering 5. The work of legislation was then begun, and had not been finished at the close of the year.

Finances.—On Oct. 1, 1889, the Territorial warrants outstanding and the interest due thereon amounted to \$223,459.94. There was due from the counties on that date a sum which, with the cash in the treasury, amounted to \$59,120.26, leaving the actual indebtedness \$164,339.68. This is the only debt that the new State will be obliged to assume.

The treasury receipts from all sources for the year ended Sept. 30, 1888, were \$153,669.26; disbursements, \$133,995.73; receipts for the year ended Sept. 30, 1889, \$213,337.92; disbursements, \$212,121.81; balance, \$1,216.11. While the total payments from the treasury for the two years were only \$346,117.54, the amount of warrants issued during the same period was \$528,179.23. A large part of the floating debt has therefore been created within the past two years. The Territorial tax levy for 1889 was 2½ mills.

Education.—For the school year ending in 1889, the following report of the public schools is made: Number of school districts, 1,161; school-houses, 1,044; average school year, four and three fifths months; children of school age, 72,723; enrolled in public schools, 46,751; male teachers, 536; female teachers, 813; monthly salary, male teachers, \$47.66; monthly salary, female teachers, \$39.67; total amount raised for school purposes, \$892.752; expended for school buildings and sites, \$245,866. In 1888 the number of children of school age was 59,833; the total enrollment was 38,673, and the total amount raised for school purposes \$505,885.

Charities.—The last Territorial Legislature appropriated \$60,000 for the erection of a hospital for the insane at Medical Lake in eastern Washington. Work is now well advanced on this building. The Hospital for the Insane at Steilacoom contained 303 patients on Oct. 1. The new building erected in 1887 is filled, and several of the old garrison buildings, formerly used as the hospital, are still occupied. The School for Defective Youth, at Vancouver, has been provided with a new building. The number of pupils last term was 26.

Penitentiary.—The Territorial Penitentiary, completed at Walla Walla in 1887, has been improved by the completion of a new cell wing, officers' and guards' quarters, and workshops. The board of commissioners report the number of convicts on Oct. 1 to be 172. Since Oct. 1, 1888, there have been received 126, and discharged 66. The prisoners are employed chiefly in brick making.

Militia.—The organized militia is composed of two regiments of infantry and one troop of cavalry; in all, 845 officers and men. The general staff numbers 25.

Development.—For the past few years Washington has had the most rapid and remarkable growth in its history. Estimates of the population for 1889, based upon the vote cast at the election, place the number of people at 239,544, or nearly twice the estimated population of 1885. For the past two years there has been an unexampled increase in the assessed valuation of property, the total value for 1887 being \$61,562,739; for 1888, \$84,621,182; and for 1889, \$124,795,449. Real property in 1889 was assessed at \$67,274,991, improvements at \$14,860,812, and personal property at \$30,129,535. The number of acres of land assessed has increased from 3,457,952 in 1885 to 8,110,706 in 1889. The acreage of improved land for 1889 was 953,791, of which 820,791 acres were in the counties east of the Cascade mountains, and 132,736 in the counties west of the mountains.

Seattle (see-at'tle), a city of Washington, on a harbor in Puget Sound known as Elliott's Bay; population estimated at 45,000. In June, 1889, the business part of the city was destroyed by fire, involving a loss of \$20,000,000. During 1889, 3,435 buildings were erected, not including those burned, which have nearly all been rebuilt. The assessment returns of 1888-'89 showed an increase in taxable property of \$5,000,000. Returns of commercial agencies show that since the fire more than 260 new firms have established themselves in business, representing a total increase per annum of between \$8,000,000 and \$9,000,000 to the trade of the city, and bringing the value of the general trade up to \$36,000,000 for the year. The industries include saw mills, brick yards, iron works, carriage factories, ship yards, planing mills, meat curers, roofers, artificial stone and cement works, soap making, tanneries, sails and awnings, harness and saddlery, candy makers, furniture factories, shingle mills, cracker works, marble works, mattress factories, box factories, broom works, oil clothing, drugs, overalls, spice factories, breweries, and brass works. The total capital employed is \$6,385,000; the number of men employed is 3,560. The city has a system of water supply which, when completed, will cost over \$1,000,000. There are three other systems of water works conducted by private companies, a paid fire department, and a powerful fireboat. The court-house now building will cost over \$300,000. Government buildings are to be erected costing more than \$500,000, and a hotel, "The Denny," now approaching completion, will cost over \$300,000. The town has 6 national, 3 State, 3 savings, and several private banks; a safe-deposit company; 4 daily and several weekly papers, and 1 monthly; 1 mortgage, loan, and trust company; 20 churches, 6 public-school buildings, 2 of which cost \$175,000, a State university, 2 private colleges, and a girls' academy; 3 hospitals and an orphan's home. There are gas works and 3 electric-light companies. There are 22 miles of cable, electric-motor, and horse-car lines of street railroads in operation. Forty miles of graded streets and 70 miles of sidewalk have been built within a few years. In 1888-'89 the capital of the

various banks was increased \$750,000, making the total \$1,450,000. On Oct. 1, 1887, a free postal-delivery system went into effect. A few weeks later Seattle was made the terminus and center of distribution of the mails for the Puget Sound country. The number of items of mail matter delivered and collected during November, 1889, was 333,190. The carriage of the mails has increased the number of steamboats leaving the port, of which there are more than 150, many of which were built at Seattle. The real estate transfers for 1889 aggregated \$15,055,794. But one railroad, the Northern Pacific, runs its trains directly into Seattle.

WEST INDIES. For the British West Indies, see article GREAT BRITAIN, p. 403.

French.—*Guadeloupe* and its dependencies—*Désirade*, *Les Saintes*, *Marie-Galante*, and *St. Martin*—have an area of 1,870 square kilometres; population in 1887, 188,188. The Governor is M. Le Boucher. The American consul is Charles Bartlett. The public indebtedness is 1,001,000 francs. The import in 1887 was valued at 20,600,000 francs; the export at 21,500,000 francs.

Martinique covers 988 square kilometres; in 1887 the population was 77,078. The Governor is Germain Casse. The American consul is William A. Garesché. The public debt is reduced to 435,000 francs. The import in 1887 was valued at 23,500,000 francs, and the export at 21,500,000 francs.

French Guiana, in South America, still being a penal colony, continues to suffer from the strong prejudices entertained against it in the mother country. The area is 121,413 square kilometres, and the population 25,796. The Governor is Gerville-Réache. The American Vice-Consul at Cayenne is Léon Wacongne. A border dispute with Holland about Dutch Guiana is to be settled by arbitration of the Emperor of Russia. The import in 1887 was valued at 8,600,000 francs; the export at 5,200,000 francs.

Spanish.—*Porto Rico* is the lesser of the Spanish Antilles, has an area of 9,315 square kilometres; population, 810,394. The Governor and Captain-General is D. P. Ruiz Dana. The American Vice-Consul at St. Johns is Andres Crosas. In consequence of the remunerative prices that the products of the island have been bringing abroad, its prosperity has increased. The building of the railroad that is to encircle the island along the coast has proceeded steadily. The imports in 1887 were valued at \$11,012,964, against \$11,116,543 the previous year; the exports at \$10,994,913, against \$10,293,544. The chief articles exported in 1887 were: Sugar, 80,792 tons; coffee, 12,551 tons; molasses, 29,112 tons; tobacco, 3,462 tons. The American trade with Porto Rico in 1889 was: Exports to the United States, \$3,707,373; imports from the United States, \$2,175,458.

WEST VIRGINIA, a Southern State, admitted to the Union in 1863; area, 24,780 square miles; population, according to the last decennial census (1880), 618,457; capital, Charleston.

Government.—The following were the State officers during the year: Governor, E. Willis Wilson, Democrat (holding over by reason of an undetermined contest between A. B. Fleming, Democrat, and Nathan Goff, Republican, gubernatorial candidates in the election of 1888); Secretary of

State, Henry S. Walker; Treasurer, William G. Thompson; Auditor, Patrick F. Duffey; Attorney-General, Alfred Caldwell; Superintendent of Free Schools, Benjamin S. Morgan; President of the Supreme Court of Appeals, Adam C. Snyder; Judges, Henry Brannon, J. W. English, and Thomas C. Green, who died on Dec. 4 and was succeeded by Daniel B. Lucas.

The Gubernatorial Contest.—Under the State Constitution it became the duty of the Legislative Assembly that met on Jan. 9 to count the returns of votes for State officers cast in the preceding November election, and to declare the result. On the face of the returns as transmitted to the Secretary of State by the commissioners of the counties, Nathan Goff, the Republican candidate for Governor, had 78,714 votes, and A. B. Fleming, the Democratic candidate, 78,604, a majority of 110 votes for Gen. Goff. By the same returns it appeared that the Democratic candidates for Auditor, Treasurer, and Superintendent of Free Schools had been elected over the Republican candidates by majorities varying from 650 to 850 votes. On Jan. 9 the Secretary of State transmitted to the Legislature the returns from all the counties except Kanawha, declaring that he was unable to deliver the returns from that county on account of an injunction issued by one of the circuit courts. This injunction, obtained at the instance of Judge Fleming, the Democratic candidate for Governor, marked the beginning of a contest to prevent the seating of Gen. Goff, on the ground that his apparent majority had been secured by frauds at the polls. The question whether the circuit court had authority to receive such an injunction, or any other similar process to prevent the delivery of the returns to the Legislature, was speedily brought before the State Supreme Court, which, on Jan. 12, declared the injunction was invalid because issued by the court without authority. On Jan. 14 the Secretary of State, accordingly, sent the Kanawha returns to the Assembly. Had these returns been held back, the remaining counties would have shown a small majority for Fleming, but, in the ordinary course of procedure, it now became the duty of the Legislature to declare the election of Gen. Goff. As Judge Fleming had notified the Legislature that he should contest the correctness of the vote for Governor, the returns for the other offices were opened and counted and the election of the Democratic candidates declared, but the returns for Governor were referred to a joint committee of the two Houses consisting of five members, two to be chosen by the Senate and three by the House. This committee was instructed to take testimony and to report its findings at a special session of the Legislature to be called by the Governor. The Senate elected Senators P. W. Morris and Edward Maxwell, both Republicans, and the House Delegates Lively, Kee, and Sprigg, all Democrats. This action of the Legislature was not accepted by the Republicans without a vigorous protest, and was claimed by them to be in direct violation of the State Constitution, which provides explicitly that the Legislature after its organization, shall at once open the returns and declare the result. The Legislature adjourned on Feb. 21 without having made any declaration of the result. On March 4, the term

expired for which Gov. Wilson was elected, but he claimed the right to retain the office until his successor should be determined. This right was disputed by Gen. Goff, who on that day qualified by taking the oath and demanded the office, but was refused. The President of the State Senate, Robert S. Carr, also, laid claim to the office, and, having qualified, made a demand, which was refused. Mandamus proceedings in the State Supreme Court were at once begun against Gov. Wilson by the other two claimants. The case of Gen. Goff was decided on March 12. The Court held that the joint legislative convention of the Legislature alone had power to determine and declare the result of an election; that, until it should do so, no candidate had any right to assume the office for which he was a candidate, and that Gen. Goff was not the legal Governor. The case of President Carr was decided on March 14, the court, in effect, declaring that no such vacancy existed in the office of Governor as, under Article VII section 16 of the Constitution, would authorize the President of the Senate to succeed to the duties of Governor; and that under Article IV section 6 Gov. Wilson was entitled to hold the office "until his successor was elected and qualified."

On April 25 the joint legislative committee met at Charleston for the purpose of hearing testimony regarding the contest, but adjourned from time to time until May 8, before entering upon its labors. It visited various parts of the State, and did not complete the hearing until the middle of September, after which considerable time was taken for the preparation of the report. This was not completed until December, and showed a wide difference of opinion between the Republican and the Democratic members of the committee. The majority report, signed by the three Democratic members, declared that, upon the evidence submitted, the committee had discovered fraudulent and illegal voting sufficient to change the result of the election, and that of the votes legally cast, 78,697 were for Fleming and 78,460 for Goff, a plurality of 237 for Fleming. The minority report, signed by the two Republican members, found no such frauds as were claimed by the majority, and gave the following as the corrected vote: Goff, 78,792; Fleming, 78,652; plurality for Goff, 140. The result reached by the majority was obtained by counting out 70 votes in Brooke County, 28 in Kanawha, and 202 in Mercer and McDowell counties. In the other counties the gains and losses of the two candidates nearly balanced each other.

On Dec. 18, Gov. Wilson issued his proclamation, calling an extra session of the Legislature on Jan. 15. At this session the majority report of the committee was accepted, and Judge Fleming, by a strict party vote, was declared elected to the office of governor.

Legislative Session.—The regular biennial session of the Legislative Assembly began on Jan. 9, and adjourned on Feb. 21. As the Democrats controlled 34 of the 65 members in the Lower House (the remaining 31 members being Republicans), an organization of that body was easily effected; but in the Senate neither party had a majority, and the choice of a presiding officer was not made until Jan. 21, after 126 ballots. Of the 26 Senators, 12 were Democrats,

13 Republicans, and 1 a Union-Labor man, elected by the aid of Republican votes. Under these circumstances, the Union-Labor Senator, Robert S. Carr, aspired to be president, and was supported in this endeavor by one of the Republican Senators, named Minear, who refused to enter the Republican caucus or to support its nominee. The Republican strength was, therefore, reduced to 12 votes, the exact number controlled by the Democrats, while the two independent members, held the balance of power. All efforts of the Republicans to induce Minear or Carr to abandon their purpose were unavailing, and the deadlock was not broken until the Democratic members decided to support Carr. On the final ballot, Jan. 21, he received 9 Democratic and 7 Republican votes. Both Houses being now organized, a joint session was held for the purpose of declaring the result of the November election. The action taken upon this matter is recorded above. The choice of a successor to United States Senator John E. Kenna occasioned another prolonged contest. The Republican caucus nominated Nathan Goff, the gubernatorial candidate of the party in the last election. In the Democratic caucus no nomination was made until Jan. 28, when Senator Kenna was renominated, receiving 31 votes, the exact number necessary for a choice. The first ballot in the Assembly was taken on Jan. 22, before a nomination had been made by the Democratic caucus, and resulted as follows: Senate—Goff 12, Kenna 5, William L. Wilson 2, scattering 5; House—Goff 28, Kenna 21, Wilson 6, scattering 9. On the sixth ballot, which was the first taken in joint convention after the renomination of Senator Kenna by the Democratic caucus, the vote stood: Goff 40, Kenna 39, scattering 7. The full Democratic strength in joint convention was 46 votes, a majority of 1 over all opponents. Forty-four ballots were taken, in which the highest number of votes received by Senator Kenna was 42. At this point the bolting Democratic members, finding that they were unable to induce Kenna's friends to abandon him and unite with them upon a new candidate, and seeing that but one day of the session remained, withdrew their opposition, and on the forty-fifth ballot Senator Kenna was re-elected by 46 to 45 for Goff.

The time of the Assembly was so far consumed by the contest over the Senate organization, and by the gubernatorial and senatorial contests, that legislation received little attention and, except the regular appropriation bills, few measures of importance were adopted. A resolution was passed refusing to consider a proposition in relation to the so-called West Virginia certificates of debt. This proposition was from New York holders of Virginia deferred certificates, amounting to \$8,000,000, which they offered to sell to West Virginia for \$2,500,000 of West Virginia bonds, in compromise of the supposed share of West Virginia in the debt of Virginia. The following acts were also passed:

Creating a State Bureau of Labor, and providing for the inspection of industrial establishments.

Assenting to the act of Congress establishing agricultural experiment stations.

Establishing a State Reform School.

Reorganizing the State militia, and providing for annual encampments.

Penitentiary.—At the State Penitentiary at Moundsville there were 266 prisoners on Oct. 1, of whom 6 were women. Of this number, 167 were employed under contract, 54 were unassigned, and 45 were cooks and laborers about the Penitentiary. A contract was made later in the year, which will give employment to about thirty.

Tobacco.—During the year ending June 30, 1889, 46,928,300 cigars were manufactured in the State, being the product of 114 factories. The number of pounds of tobacco consumed in their manufacture was 836,095. Wheeling manufactures more cigars than all the other towns in the State combined. The number of tobacco factories was 11, and they consumed 2,479,003 pounds of material; 5,725 pounds of plug and 2,267,270 pounds of smoking tobacco were manufactured, and the tax paid to the Government amounted to \$182,100.16.

WISCONSIN, a Western State, admitted to the Union in 1848; area, 56,040 square miles; population, according to the last decennial census (1880), 1,315,497; capital, Madison.

Government.—The following were the State officers during the year: Governor, William D. Hoard, Republican; Lieutenant-Governor, George W. Ryland; Secretary of State, Ernst G. Timme; Treasurer, Henry B. Harshaw; Attorney-General, Charles E. Estabrook; Superintendent of Public Schools, Jesse B. Thayer; Railroad Commissioner, Atley Peterson; Insurance Commissioner, Philip Cheek, Jr.; Chief Justice of the Supreme Court, Orsamus Cole; Associate Justices, Harlow S.orton, John B. Cassoday, William P. Lyon, and David Taylor.

Finances.—Owing to large special appropriations made by the Legislature of this year, there was not sufficient money in the treasury at the adjournment of the session to meet those appropriations and the current expenses. The Treasurer therefore refused to pay the special appropriations until the semi-annual payment of railroad, telegraph, and telephone taxes in August provided the treasury with funds. On Oct. 1 there was a balance of \$271,542.63 in the general fund, against \$304,139.09 in October, 1888. No general State tax was levied on property during the year, except the one-mill tax for educational purposes. The revenue for general purposes was derived chiefly from taxation of railroad, telegraph, and telephone companies.

Legislative Session.—The regular biennial session of the Legislature began on Jan. 7, and adjourned on April 19. Two acts designed to secure a secret ballot at elections was passed. The first applies to cities having 50,000 inhabitants or more, which at present includes Milwaukee only. It requires that every such city shall provide each voting precinct with two rooms adjoining each other, one of which shall be known as the inspectors' and voting room, and the other as the ticket room.

All windows shall be so screened as to prevent any person outside from looking into the interior of any ticket room. Every voting room shall be provided with a swinging window, which may be used by the challengers in challenging persons offering to vote, and shall also be provided with a hall or passage way, into which voters may enter through a door from the ticket room to cast their votes; such hall or passage way may be provided with such barriers or railings as

may be deemed necessary to protect the inspectors from annoyance and the voter from molestation while he is voting. In the ticket room shall be kept a table or tables having compartments conveniently arranged, so that the voter after entering the ticket room may be enabled conveniently to select his ballot. Upon such table shall be deposited and kept tickets which may be prepared for the use of voters by any political party. Each voter when in said ticket room shall be at liberty to select from the ballots kept there such as he may wish. Only one voter shall be allowed in the voting room at the same time. All voters shall be admitted singly through a door leading from the exterior of the building into the ticket room, and shall pass thence through a door into the voting room, and thence, after voting, shall pass by a door to the outside. The door last mentioned shall have a gong or bell in such a manner that such gong or bell will sound by opening said door, so that the policeman at or near the entrance to the ticket room and the voters in the ticket room may know that a voter has left the voting room. No crowd or crowds of persons shall be permitted to collect or remain within one hundred feet of the voting room or ticket room during the holding of any election in any such city.

All interference of any kind with a voter in either of these rooms is forbidden. All ballots must be printed upon white paper of a stated quality and of a size fixed by this act. The second act, known as the Cooper law, applies to all elections occurring outside of the above-named cities and the counties to which they belong, except elections for town and village officers. All ballots for such elections shall be prepared and distributed by the county clerk at the expense of the county, except that, in municipal elections, the expense shall be born by the city. Candidates shall be nominated by nomination papers, filed with the Secretary of State or with the county clerk. The nomination papers of candidates nominated by a party convention or caucus shall be signed by the president and secretary of such convention or caucus. The nomination papers of any other candidate shall be signed, if he is to be voted for throughout the State, by 1,000 voters; if in a district smaller than the State, by at least one voter for every hundred who voted at the preceding election in the district in which the candidate is to be voted for, but in no case shall the signatures be fewer than 50. The county clerk shall print the names of all candidates on each general ballot, arranging them under the names of the respective offices to be filled, except that the presidential electors of each party may be placed in separate groups. Blank spaces shall be left at the end of the list of candidates for each office. On the back of every ballot shall be printed "official ballot for," followed by the designation of the polling place for which the ballot is prepared and the date of the election. All ballots shall be printed with black ink upon white paper of a designated size and quality. Each polling place shall be provided at public expense with at least one voting shelf or compartment for every 50 voters in the district, in which voters may mark their ballots screened from observation, and a guard rail shall be so constructed that only persons within such rail can approach within five feet of the ballot boxes, or the shelves, or compartments.

Before delivering any ballot to an elector, the two ballot clerks shall write their names or initials on the back of the ballot immediately under the printed indorsement.

On receipt of his ballot the elector shall forthwith retire alone to one of the booths or compartments and shall prepare his ballot by marking a cross after the name of the person or persons for whom he intends to vote.

Any elector shall be at liberty to use or copy any unofficial sample ballot which he may choose to mark or to have had marked in advance of entering the polling place or booth to assist him in marking the official ballot, but such unofficial sample ballot shall be printed on paper of a different color and quality from the official ballots. After preparing his ballot, the elector shall fold it so that the face of the ballot will be concealed, and so that the printed indorsement and the signatures or initials of the ballot clerks thereon may be seen. He shall then vote forthwith; provided, however, that any elector who desires to vote for an entire group may mark a cross as above described against the political designation of such group and shall then be deemed to have voted for all the persons named in such group, whose name shall not have been erased. Not more than one person shall be permitted to occupy any one shelf or compartment at one time; and no person shall remain in or occupy a shelf or compartment longer than five minutes, provided the other shelves or compartments are occupied. No ballot which has not the names or initials of the ballot clerks shall be received or counted. No person shall solicit votes for any candidate or party or do any electioneering whatever on election day within any polling place, or within one hundred feet of any polling place. No person shall remove any ballot from any polling place before the closing of the polls. No person shall show his ballot after it is marked to any person in such a way as to reveal the contents thereof.

A new local-option law provides that, on petition of 10 per cent. of the voters, an election may be held in any town, village, or city on the first Tuesday of April in any year to determine whether liquor licenses shall be granted. The result of such election shall be in force until changed by a subsequent election. An act for the relief of indigent Union soldiers and sailors and their indigent wives, widows, and children, requires that in each county an annual tax of not less than one fifth, and not over two fifths of a mill shall be levied, and directs that the proceeds shall be distributed by a county relief commission appointed by the county judge.

The constitutional amendment making the oldest member of the Supreme Court in point of service *ex officio* Chief Justice, which was proposed by the Legislature of 1887, was again adopted, and provision was made for its submission to the people at the April election. Two other constitutional amendments were proposed for the first time, one forbidding the passage of special laws to incorporate cities, the other providing that the compensation, duties, and mode of election of the State Superintendent of Schools shall be prescribed by law. The Constitution now fixes the salary of this officer, and directs that he shall be elected by the people. Other acts of the session were as follow:

Changing the day for meeting of presidential electors from the first Wednesday in December to the second Monday in January next following their election.

Appropriating \$15,000 as a contingent fund to be set apart and used in emergencies to prevent or suppress Asiatic cholera, small-pox, and other contagious diseases.

Appropriating \$5,000 for the purchase and equipment of a permanent camp for the State militia in Juneau County.

Authorizing a compilation of the public statutes of the State by Berryman and Sanborn.

Authorizing the construction of sewers and drains by village authorities.

Authorizing school boards to purchase United States flags for the schools.

To prevent persons unlawfully wearing the insignia of the Loyal Legion.

Regulating the procedure for the discharge of insolvent debtors who have made a voluntary assignment.

Authorizing the Governor to designate and set apart one day in the year to be observed as "Arbor Day."

Prohibiting the manufacture and sale of any substance or compound as being pure butter or cheese which is not such.

Creating the office of dairy and food commissioner.

Providing that wages shall be paid weekly or bi-weekly, unless there is a written contract to the contrary.

Providing a penalty for any person who keeps or is in any way interested in or connected with any house or place used for baiting or fighting any bird or animal.

Providing a general law for the incorporation and government of cities.

Authorizing the formation of six new companies of infantry, to form a part of the National Guard.

Providing that any person who shall perform any services in cutting, felling, hauling, running, driving, rafting, booming, cribbing, towing, sawing, peeling, or manufacturing into lumber any logs or timber shall have a lien upon such lumber for the amount due for such services.

Revising and amending the game laws.

Providing that the registration law shall apply to the annual municipal and judicial elections in all places where registration is now required at general elections.

Regulating building and loan associations.

To authorize the formation of druggist mutual insurance companies.

The Bennett School Law.—The chief provisions of this law, which was the subject of much discussion in the State during the year, are as follow:

Every person having under his control a child between the ages of seven and fourteen years shall annually cause such child to attend some day school for a period not less than twelve weeks; provided that any such child shall be excused from attendance on its being shown that the person so neglecting is not able to send such child to school, or that instruction has otherwise been given for a like period in the elementary branches commonly taught in the public schools. No school shall be regarded as a school under this act unless there shall be taught therein, as part of the elementary education of children, reading, writing, arithmetic, and United States history in the English language. No child under thirteen years of age shall be employed or allowed to work by any person, company, firm, or corporation at labor or service in any shop, factory, mine, store, place of manufacture, business, or amusement, except that the judge of the county court may grant a permit for any child over ten years to be so employed, on proof that such child can read and write the English language, and that its parents are needy and its labor is necessary for the support of the family.

This act had no sooner been passed than it was vigorously attacked by the foreign elements of the population, especially by the German Lutherans and the Catholics. It was denounced as an attempt to control the parochial schools, and also as an infringement of private rights. The Catholic bishop issued a manifesto in which

he declared that "it interfered with the rights of the Church and of parents." All the provisions of the new law, except those requiring teaching in the English language, have in substance been the law of the State for years.

Charities.—On Dec. 31 the number of insane patients at the State Hospital was 495, at the Northern State Hospital 627, and at the Milwaukee Hospital 249. There was paid out by the State to county asylums for the year ending Sept. 30 the sum of \$149,889.66, under the law giving State aid to such asylums, at the rate of \$1.50 per week for each inmate. On Dec. 31 the State School for the Deaf contained 184 pupils, and the School for the Blind 81.

Prisons.—At the State Prison, on Dec. 31, there were 521 convicts, 16 of whom were women. The Industrial School for Boys contained on that date 474 boys, and the State Public School cared for 256 children.

Farm Products.—The following figures for 1888 were published this year by the Secretary of State: Yield of wheat, 9,786,983 bushels; corn, 29,058,857 bushels; oats, 41,733,682 bushels; barley, 10,502,443 bushels; rye, 4,049,784 bushels; potatoes, 11,492,108 bushels. There were grown 1,134,227 bushels of root crops, 189,145 bushels of cranberries, and 1,103,699 bushels of apples. There were 1,667,364 pounds of flax harvested, and 261,525 pounds of hops. The total yield of tobacco was 14,293,865 pounds. The butter product of the State was 31,619,926 pounds, and the cheese 38,538,472 pounds.

Political.—A State election was held on April 2, for the purpose of choosing a justice of the Supreme Court to succeed Justice J. B. Cassoday. In response to a call signed by the State officials and by many lawyers, Justice Cassoday became a candidate for re-election, and no party nomination being made, he received substantially the entire vote cast. The constitutional amendment making the oldest member of the Supreme Court in point of service *ex officio* Chief Justice, which was submitted to the people at this time, was adopted with but few dissenting votes.

WYOMING, a Territory of the United States, organized in 1868; area, 97,890 square miles; population, according to the last decennial census (1880), 20,789; capital, Cheyenne.

Government.—The following were the Territorial officers during the year: Governor, Thomas Moonlight, succeeded by Francis E. Warren; Secretary, Samuel D. Shannon, succeeded by John W. Meldrum; Treasurer, Luke Voorhees; Auditor, Mortimer N. Grant; Attorney-General, Hugo Donzelman; Superintendent of Education, John Slaughter; Chief Justice of the Supreme Court, William L. Maginnis, succeeded by Willis Van Devanter; Associate Justices, Samuel T. Corn and M. C. Sanfley.

Finances.—On Jan. 1, 1886, there was a cash balance of \$31,175.45 in the treasury, and no outstanding obligations. Since that time several public buildings have been constructed, or are now in course of construction, in payment for which issues of Territorial bonds have been authorized amounting to \$320,000. This amount of bonds was outstanding on Oct. 1, when the balance in the treasury was \$47,752.76.

The assessed valuation of property for 1889 was approximately \$31,431,495. There were as-

sessed 5,868,370 acres of agricultural land, valued at \$5,866,174; town lots, valued at \$4,622,005; railroads, valued at \$6,062,597; 632,583 neat cattle, valued at \$7,014,661; 81,779 horses, valued at \$2,387,369; and 459,991 sheep, valued at \$749,557.

Education.—The census of 1880 reports less illiteracy in Wyoming than in any other State or Territory in the Union. Education is compulsory, and a high standard in the management of the public schools has been maintained. There were 256 teachers employed, exclusive of those in the university, convent, church, and private schools, during the last school year, at an average monthly salary of \$58.71. The increase in number of pupils in the public schools in 1888 over 1887 was 1,260.

Insane Asylum.—An asylum for the support and care of the insane was provided for by the Legislative Assembly of 1886, and by appropriations of over \$60,000 a building has been erected at Evanston, Uintah County. In April, 1889, the hospital was opened; in October, the institution had between 15 and 20 inmates.

Penitentiary.—A Penitentiary is in process of construction at Rawlins, an appropriation of \$30,000 therefor having been made by the last Legislature. The prisoners are at present confined almost entirely at the State prison in Joliet, Ill. On Sept. 25 there were 80 at this institution, 1 at Lincoln, Neb., 2 insane prisoners at Jacksonville, Ill., and 7 juvenile delinquents at the Reformatory at Golden, Col.

Indians.—The Shoshone Indian reservation, 1,520,000 acres, is in Fremont County, and is the only one within the Territory. There are at this agency 841 Shoshones, and 978 Arapahoes. They retain their tribal relations, but are peaceably disposed.

Constitutional Convention.—The desire of the people of the Territory for Statehood has been increasing during the past few years. The tenth Legislative Assembly, in February, 1888, memorialized Congress on this subject, and in May, 1889, a majority of the counties, through their commissioners, requested Gov. Warren, with the aid of the Chief Justice and the Secretary, to apportion the delegates, and to do such other things as would be necessary for convening a constitutional convention. An apportionment was made on June 3, 1889, and a proclamation issued designating the second Monday in July, 1889, for an election of delegates to a constitutional convention at Cheyenne, on the first Monday in September. At this election 55 delegates were chosen, the majority being Republicans. They assembled at Cheyenne, and were in session from Sept. 3 to Sept. 30, inclusive. The result of their labor is embodied in a Constitution and an address to the people and to Congress. The main features of the Constitution are as follow:

The rights of citizens of the State of Wyoming to vote and hold office shall not be denied or abridged on account of sex. Both male and female citizens of this State shall equally enjoy all civil, political, and religious rights and privileges.

The legislative power shall be vested in a Senate and House of Representatives which shall be designated "The Legislature of the State of Wyoming."

Senators shall be elected for four years and Representatives for two years.

Each county shall have at least one Senator and one

Representative; but at no time shall the number of the members of the House of Representatives be less than twice nor greater than three times the number of members of the Senate.

No session of the Legislative Assembly after the first, which may be sixty days, shall exceed forty days. After the first session the compensation of the members of the Legislature shall be as provided by law; no Legislature shall fix its own compensation.

The sessions shall be biennial, beginning on the second Tuesday of January next after the general election. Local and special legislation is prohibited.

The Legislature shall have no power to pass any law authorizing the State, or any county in the State, to contract any debt or obligation in the construction of any railroad, or give or loan its credit to or in aid of the construction of a railroad.

The offense of solicitation of bribery by members of the Legislature is defined and forbidden.

The executive power shall be vested in a Governor, who shall hold his office for four years and until his successor is elected and duly qualified. He shall have the pardoning power and a veto power. He may veto separate items of any appropriation bill.

There shall be chosen by the people, for four years, a Secretary of State, Auditor, Treasurer, and Superintendent of Public Instruction, who shall have attained the age of twenty-five years respectively.

The judicial power of the State shall be vested in a Senate, sitting as a court of impeachment, in a supreme court, district courts, justices of the peace, courts of arbitration, and such courts as the Legislature may, by general law, establish for incorporated cities or incorporated towns.

The Supreme Court shall have original jurisdiction *in quo warranto* and *mandamus* as to all State officers, and in *habeas corpus*, and shall have general appellate jurisdiction, coextensive with the State, in both civil and criminal causes, and a general superintending control over all inferior courts under such rules and regulations as may be prescribed by law. It shall consist of three justices who shall be elected by the qualified electors of the State at a general State election; and their term of office shall be eight years. The clerk of the Supreme Court shall be appointed by the judges.

All elections shall be by ballot. The Legislature shall provide by law that the names of all candidates for the same office, to be voted for at any election, shall be printed on the same ballot, at public expense, and on election day be delivered to the voters within the polling place by sworn public officials, and only such ballots so delivered shall be received and counted. All voters shall be guaranteed absolute privacy in the preparation of their ballots, and the secrecy of the ballot shall be made compulsory. A suitable registration law shall be enacted. General elections shall be held on the first Monday in November of each even year.

The Legislature shall provide for the establishment and maintenance of a complete and uniform system of public instruction, embracing free elementary schools, a university with such technical and professional departments as the public good may require and the means of the State allow, and such other institutions as may be necessary. In none of the public schools so established and maintained shall distinction or discrimination be made on account of sex, race, or color. Neither the Legislature nor the Superintendent of Public Instruction shall have power to prescribe text-books to be used in the public schools. The establishment of the University of Wyoming is confirmed, and said institution, with its several depart-

ments, is declared to be the University of the State of Wyoming.

The Legislature shall have no power to change or to locate the seat of government, the State University, Insane Asylum, or State Penitentiary, but may, after the expiration of ten years after the adoption of this Constitution, provide by law for submitting the question of the permanent location thereof, respectively, to the qualified electors of the State, and a majority of all votes upon said question cast at said election shall be necessary to determine the location thereof; but for said period of ten years, and until the same are permanently located, the location of the seat of government and said institutions shall be as follows: The seat of government at the city of Cheyenne, in the county of Laramie; the State University at the city of Laramie, in the county of Albany; the Insane Asylum at the town of Evanston, in the county of Uintah; the Penitentiary at the city of Rawlins, in the county of Carbon. The Legislature shall not locate any other public institutions except under general laws, and by vote of the people.

The waters of all natural streams, springs, lakes, or other collection of still water, within the boundaries of the State are hereby declared to be the property of the State.

There shall be a State engineer and superintendents for each of the four water divisions into which the State shall be divided.

There shall be an Inspector of Mines and a State Geologist.

There shall be no consolidation or combination of corporations of any kinds whatever to prevent competition.

No person not a citizen of the United States, or who has not declared his intentions to become such, shall be employed upon or in connection with any State, county, or municipal works or employment.

For State revenue, there shall be levied annually a tax not to exceed four mills on the dollar of the assessed valuation of the property in the State, except for the support of State educational and charitable institutions, the payment of the State debt, and the interest thereon.

The State of Wyoming shall not, in any manner, create any indebtedness exceeding one per centum on the assessed value of the taxable property in the State, as shown by the last general assessment for taxation preceding, except to suppress insurrection or to provide for the public defense.

The State shall not engage in any work of internal improvement unless authorized by a two-third vote of the people.

Eight hours' work shall constitute a lawful day's work in all mines, and on all State and municipal works.

Amendments to this Constitution shall be passed by a two-third vote of each House of the Legislature, and receive a majority vote of the people at the next general election.

Provision was made for the submission of this instrument to the people for ratification on the first Tuesday of November, 1889. At that time a special election was held throughout the Territory, at which 8,195 votes were cast, 6,272 being in favor of the Constitution and 1,923 against it. A copy of the Constitution, together with a certificate of this vote, was then forwarded to the President of the United States, and the action of the people of the Territory was also duly laid before Congress, with a request for admission.

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ZANZIBAR, a sultanate on the eastern coast of Africa. The reigning Sultan is Khalifa ben Said, born in 1858, who succeeded his brother on March 27, 1888. (For area and population see "Annual Cyclopædia" for 1888.) By a treaty made in 1887 the administration and the collection of duties on the coast from Kipini to Vanga was transferred to the English East African Company, and by the treaty of April 28, 1888, the Sultan delegated to the German East African Company the administration and collection of revenue on the mainland from Vanga southward to the limit of his territory at the Rovuma river. The United States consul reported in 1884 that the imports for the preceding year had amounted to \$6,100,000, and the exports to \$4,000,000. The chief articles of export are cloves, gum copal, caoutchouc, skins, red pepper, and sesame. The transit trade in ivory was formerly about \$1,500,000 per annum. In 1888, besides 147 vessels of war, 47 English, 17 French, 5 German, and 3 Belgian steamers called at Zanzibar.

The Arab Revolt.—The chiefs of villages and Arab traders, on seeing that the Germans meant to deprive them of their privileges and means of livelihood, incited the entire black population to take up arms to oust the German company from all the stations on the mainland. In this object they had the sympathy of the British Indian merchants. The German officials retreated from all the coast stations except Bagamoyo and Dar-es-Salam, and German gunboats shelled the towns and every human habitation that was within range of the guns. The German and English blockade did not hinder the importation, largely by German and English merchants, of arms for the rebels, who were well supplied with Snider and Mauser rifles and cartridges. The East African Company not only refused to pay to the Sultan the stipulated amount, but injured his prestige, and at the same time added to its own difficulties, by withholding the salaries of the Sultan's officials. The natives under the half-breed Bushiri attacked the block-house at Bagamoyo in which the company's officials had taken refuge and on Jan. 12, 1889, the German missions at Pugu, near Dar-es-Salam, retaking about 100 slaves that had been captured by the German blockading vessels, killing four missionaries, and making captives of three. As the price of their release they demanded the complete evacuation of the coast and the return to the *status quo ante*, but through the intervention of French missionaries they were exchanged for the Arab slavers taken on the captured dhows and a money ransom. Out of hundreds of vessels overhauled by the blockading fleet, only three had slaves aboard. Dar-es-Salam was attacked and plundered by the Arabs, and burned either by them or by shells from the gunboats. The freed slaves in charge of the Protestant mission, 150 in number, were captured, while the missionaries escaped in a boat to the "Möwe." While the German ships were bombarding the coast opposite Zanzibar, and the British ships patrolling the northern coast where there is no slave trade, the Arab

traders had no difficulty in exporting slaves from Pemba island to Muscat and from the Portuguese coast to Madagascar. The British seized a French vessel, and by way of reparation dismissed the officer responsible for the act, but they captured no slavers nor contraband arms.

The Wissmann Expedition.—The German Reichstag, on Jan. 28, granted 2,000,000 marks for re-establishing German power in eastern Africa. The "bill for the protection of German interests and the combating of the slave trade" sanctioned what was called a supplementary land blockade. The Government proposed to place the military measures and the political direction in the hands of an imperial commissioner, and selected Capt. Wissmann, the explorer, for this service. He recruited a force in Egypt of Soudanese blacks, and engaged 60 Germans, among the hundreds that volunteered, as officers of the expedition. There were only 20 Germans remaining on the mainland, in two fortified houses well covered by the guns of the two vessels anchored at Bagamoyo and Dar-es-Salam. Bushiri, with from 5,000 to 6,000 men, held entrenched positions just beyond the range of the cannon. The Arabs, who had enriched themselves by captures of slaves and ivory had numerous skirmishes with the Germans, but ventured only once to assail the forts, even at night, for fear of the mines. The Germans sent landing parties against them, one of which, on March 3, recaptured two Krupp guns. The blockade in March was extended to the islands of Pemba and Zanzibar, stopping the traffic in arms that was the main source of profit to the European merchants. The English fleet, the chief duty of which was to observe the Germans, was strengthened before the arrival of Wissmann. Admiral Deinhard interdicted the importation of provisions, injuring by this measure the Indian traders and colonists rather than the hostile Arabs and Suaheli. Marines made forays on shore and burned several villages. On March 23 the town of Saadani was bombarded, and on March 27 a detachment of 230 seamen landed at Konduchi and burned the place. The Sultan probably assisted with money the revolt of Bushiri and other chiefs against the Germans, but had no part in a plot that was discovered in April among his Arab soldiery to massacre all Europeans in Zanzibar.

Capt. Wissmann arrived in Zanzibar on March 31, and on April 5 raised the German commercial flag at Bagamoyo in place of the company's ensign. Besides the Soudanese that he brought, with their families, from Cairo, he enlisted Somalis at Aden and Zulus at the Cape. On his arrival, while building forts at Bagamoyo and Dar-es-Salam, Capt. Wissmann made a truce of two weeks with Bushiri, on the pretext of treating for peace. When his forces, numbering about 800, had all arrived he marched upon Bushiri's camp on May 8, assisted by 222 German sailors. The Arabs were routed, and their camp was captured and destroyed. Two German officers were killed, and several were wounded.

Of the black soldiers 40 were killed. Although Bushiri's force was inferior to Wissmann's, numbering about 600, the fighting was severe. The Arabs were surprised, but stood their ground for four hours in the face of a continuous fire of artillery and infantry, and still contested the fort after the Germans had entered with fixed bayonets through the breaches in the palisades, succumbing at last to superiority of numbers and arms. The number of the killed on the Arab side was more than 100. The rebels escaped under cover of the tall grass in the direction of the Kingani river. The garrison at Dar-es-Salam drove away Soliman-ben-Sef and his followers. A price was put on the head of Bushiri, and his chief supporter was caught and hanged. Several Valis treated for peace. Bushiri wandered from village to village, eluding the attempts of the Germans to capture him, but not succeeding in his endeavors to induce the tribes to take up arms. On June 7 the Germans bombarded Saadani, a force of more than 1,000 men were landed, and the Arabs retreated into the interior. The town was burned, with a large amount of property belonging to Indian merchants. Wingi was burned likewise. Capt. Wissmann then endeavored to make peace with the inhabitants of Pangani, but they misinterpreted the withdrawal of the troops from Saadani as an indication of weakness. On July 8 the town was bombarded and occupied, and two days later Tanga was bombarded. The German commissary did not attempt to restore German authority at Lindi and the other places south of the Kingani, but merely to clear the coast opposite Zanzibar, and thence open the caravan routes to Unyamwezi. The English authorities were asked to encourage the return of the Indian merchants who had returned to Bombay to await better times. Several ivory caravans came down to the coast after the first successes of the Germans, but soon the insurgents again blocked the road to Mpwapa, which was attacked by Bushiri, who had collected a new army, chiefly among the Mafite, the warlike Zulus of the lake region and Zanzibar coast. A body of military police was organized, which scoured the country between Dar-es-Salam and Bagamoyo, and early in September took possession of Konduchi for the second time, and destroyed every dwelling. Capt. Wissmann traversed the coast region at the head of a considerable force, deposing Valis, confiscating the property of rebels, manumitting their slaves, and hanging slave dealers. At Pagani, Tanga, and Saadani, there was severe fighting. In order to escort the Wanyamwezi, of whom there were thousands at Bagamoyo, back to their homes, and to open the route into the interior, Wissmann set out, in September, with 800 of his own people, besides 30 Europeans. The Wanyamwezi in the caravan numbered 1,200. Arriving at Mpwapa, he built a stone fort with two bastions, in which he left 100 men and provisions for four months. He also sent stores to Henry M. Stanley and Emin Pasha, who were twenty days' journey away when he left for the coast on Oct. 20. On Oct. 21 Baron von Gravenreuth, who had been left in command at the coast, advancing from Dar-es-Salam by way of Madi-mola, at Yombo outflanked and surprised Bush-

iri, who, with 6,000 Mafiti, had been devastating Usaramo. While the Germans seized and burned Bushiri's camp, their own reserves and baggage train were attacked. The Mafitis made three charges, which were repelled with heavy losses. The German force lost 7 men. The Mafiti, who left 200 dead on the field, were scattered, and were pursued by the patrols and the people everywhere, and at least 400 more were killed. In Dunda and Kingani Capt. Richelmann gained slight successes. This victory had a great moral effect. Men of wealth and influence hastened to declare their allegiance. In a few days nothing was seen of rebels between Bagamoyo and Dar-es-Salam for a distance of four days' journey inland.

The blockade ended on Oct. 1. The Germans still prohibited the importation and sale of arms and ammunition, and, at their request, the English for a few weeks continued the interdict on their part of the coast. The Sultan gave permission to the Germans and English to search all Arab dhows found in the territorial waters of Zanzibar. He also issued a proclamation declaring that all slaves brought into his territories after Nov. 1, 1889, should be free. The Germans, on obtaining this decree, neglected to keep their promise to repeal the interdict on the traffic in munitions, though afterward Capt. Wissmann concluded to allow the sale of arms and powder, in limited quantities, to persons of approved loyalty, for their protection against slave-raiders. The German company proposed to pay in future for the farm of the customs a rent of \$50,000 a year, which was the amount that had been cleared during the first year of their administration. The Sultan objected strongly to such an arrangement, because in times of peace he had received \$350,000 on the average from the German part of the coast.

Bushiri, deserted by his followers, was at last captured by a native tribe and handed over to the Germans. He was tried by court-martial and declared guilty of cutting off the hands of natives in the service of the Germans and of other barbarities; and also of murdering Nielsen, the agent of the East African Company, at Mpwapa, in July. On Dec. 15 he was hanged at Pangani.

The British East African Company.—The English company that was founded for the purpose of exploiting the concessions obtained from the Sultan of Zanzibar in compensation for those granted to Germans had the advantage of abundant capital. The charter was obtained in September, 1888. During the first year a harbor was constructed at Mombassa, and roads were built to Mbungu and Malindi. The English adopted a policy of liberality and conciliation that was the opposite of the policy that had aroused the antagonism of the natives toward the Germans, and even in the blockade were careful to make the impression upon the Arabs that the British were their friends. George S. Mackenzie, administrator of the company, arrived in Zanzibar in October, 1888, with seventeen white assistants. On landing at Mombassa he purchased the support of Mbruki, the most powerful chief in that part of the country, and gave satisfaction to all the chiefs and slave owners by forbidding missionaries to interfere

with the institution of slavery. The missionaries have been accustomed to harbor and protect runaway slaves. Their chief object has been to rescue people from slavery, and in this they have been protected usually by the British authorities. When the agent of the East African Company came, the chiefs complained that many hundreds of escaped slaves were harbored in the missions. The company compensated their owners, paying \$20,000, one fifth of which was contributed by the British Government, and issued an edict forbidding missionaries in the future to shelter or protect refugee slaves or otherwise interfere with native customs. The company established cocoanut plantations and instituted experiments with tobacco and other plants. The region assigned to the English is more healthful than the German part of the coast, and not less productive.

The Lamu Question.—The Anglo-French agreement of 1886, to which Germany gave her adhesion in 1886, recognizes the political independence of the Sultan of Zanzibar, and the Anglo-German agreement of 1886 defines the limits of his dominion and delimits the respective spheres of influence of Germany and Great Britain. The river Umba, sometimes called the Wanga, from a village near its bank, was fixed as the boundary between the spheres of influence. North of this line, extended in a specified course to the shore of Victoria Nyanza, the English were understood to have a free hand, and south of it the Germans. The coast line handed over to English administration ended at the Tana river, north of which Dr. Jühlke had established relations with some of the tribes by virtue of which territorial rights have been asserted by Germans over a part of the Somali coast. Immediately touching the northern limit of British administration the brothers Denhardt, soon after the delimitation of the spheres of influence, took part in a revolution by which a new Sultan was placed over the territory of Vitu, which has an area of 100 square miles. The Sultan acknowledged the protection of Germany, and the German Vitu Company was formed in 1887 to establish German interests in this region. The company could not expect to acquire easily the trade of the sultanate, for the trade of this entire coast had been developed by British Indians and was entirely in their hands. The seaport giving access to Vitu is on the island of Lamu belonging to the Sultan of Zanzibar. The English claimed that it was included in the territory handed over to the administration of the British East African Company. The Germans disputed this, obtained a promise from the Sultan of Zanzibar to cede the island to them, and made a settlement.

When Dr. Karl Peters, leader of the German Emin Pasha relief expedition, arrived in Zanzibar, he was not permitted to land a large part of his munitions, owing to the objections of the English. He had intended to debark at Lamu, but the master of the Indian steamer that he had chartered, under the instructions of the British naval authorities in those waters, refused to stop at that point. Capt. Wissmann would not allow Dr. Peters to set out from Bagamoyo. He pretended to have abandoned the expedition, and steamed in the direction of Mozambique,

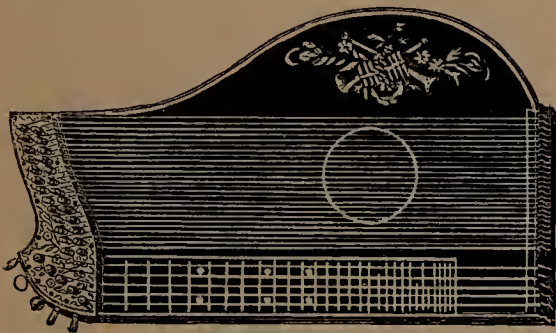
but changed his course when out at sea, and landed with his officers and 100 Somalis at Shimbi in Kwyhoo Bay, north of Lamu and just outside the limits of the British blockade. The indispensable articles for the expedition were landed here with difficulty, and then the steamer with the trade wares still on board was sent to unload at Lamu. Admiral Fremantle, commander of the British blockading forces, seized the "Neera" as a prize when she put into Lamu, and took her to Zanzibar, where the prize court in August directed her to be returned to her owners. Peters marched up the north bank of Tana river, establishing German stations as he went. On learning this the British East African Company sent a party to raise the British flag ahead of him. He had difficulty with the natives, and in November was reported killed, but was said at a later date to have advanced in safety to Mount Kenia.

At the invitation of the English and German governments, a Belgian diplomatist, Baron Lambert, acted as arbitrator in the dispute regarding the administration of the customs at Lamu. He decided in July that the English claim was the older and valid one. The Sultan then confirmed the concession of the island and port, and turned over to English administration the other four northern ports belonging to Zanzibar, viz., Kismayu, Brava, Magadosho, and Warsheikh. The German Government declared a protectorate over North Vituland, that is, over the coast region as far as Kismayu. The English made treaties with native tribes between the Tana and the Juba, but the German Government, although before it had refused a *Schutzbrief*, determined to uphold the older treaties made in 1886 with Dr. Jühlke, who was murdered by the Somalis in the same year. The German Vitu Company endeavored to obtain a commercial footing in Lamu by advancing money to traders at lower rates than the Indian bankers had been accustomed to charge, and in this competition was outbid by the English company, which offered to lend at half the interest charged by the German agent, Karl Töppen. The British rule was welcome not only to the Indian merchants, but to the Vali and the principal natives. The principal harbor of the new German acquisition in South Somaliland is at the mouth of the river Vubushi in 1° of south latitude, where a station was founded in 1886 called Hohenzollern harbor. The coast line is 150 miles. The Vitu Company in December was amalgamated with the German South African Company.

ZITHER, OR CITHARA, a musical, stringed instrument. It has a flat and shallow resonance box, resembling a trapezium with the top truncated. It has a sound-hole and a finger-board with frets, and the strings are fastened to pegs at the top of the instrument and pass under the lower rim at the other end. The old high zither of Germany had eight strings; the tenor, ten strings. Until within fifty years the instrument introduced from Austria and Bavaria, with the improvements made by the peasant Johann Petzmayer—who afterward manufactured them at Munich—had, commonly, twelve accompaniment and base strings, and three for the finger-board. Within twelve years zithers have been made with from forty to forty-six strings—triple, contra,

and elegie—and have a patent head attachment. Modern variants of the zither are the Schlagzither, and Streichzither, or the philomelé and vielle. In one instrument the strings are in-tonated by the fingers, with the thumb of the right hand, on the chanterelle strings, protected by an open ring of silver or gold, and in the other the strings are sounded by a bow, as viols are, with a small wooden foot placed under the head for steadiness and support. The philomelé has no gut-strings.

Music for the zither is written in two clefs. The zither has usually four strings on the finger-board, for which the violin clef is used, and the base clef is used for the others. The two A strings of the finger-board strings are made of steel, the D string of brass wire, and the G string is overspun with silver wire. A C string is brass, covered with copper wire. Some of the accompaniment strings are of gut; others are overspun



THE MODERN ZITHER.

with copper and silver, to assist the eye. The two A strings are attuned in unison, and are used to play double notes and chords. The other strings are tuned in fifths and fourths. The G string can be played chromatically from the G below the staff to the C of third space. The D string can be played chromatically from the D below the staff to G above. The A string from A of second space to the second D above the staff, with the exception of E flat and A flat, major. One can play in all keys, as every chord is located so that it can be taken with the same fingering. Both thumbs are used in playing the zither, and the first, second, and third fingers. The fourth finger is rarely used. The fingers and thumb of the left hand are used on the frets; and the third of the right hand on the base and accompaniment strings. The melody strings are touched by the thumb of the right hand, as the full sound can not be produced by the left alone. The back of the resonance box of the zither is flat, and is made of maple, sycamore, or pear wood; the level sounding-board is of deal.

It is the most ancient of musical instruments, and the ancestral idea to which all variations may be traced. That it was known to most of the world is shown by the names it has borne. Cognate with zither or cithara—by either of which names it is known, in deference to its Bavarian popularity or its antiquity—is the *kithara* of the Greeks; the Latin *psalterium*; Italian *chitarra*, or *cèlara dulcimeles*; Spanish *salterio dulcimele*; Caucasian and Turkish *santir* and *kanoon*; Hebraic *psalterion*; Syriac *asor* or *athor* and *psanterin*; Assyrian and Egyptian

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“ten strings of Cnthah”; Anglo-Saxon *crudh* or *crowder*; Welsh *crwth*; Irish *crúith* and *clari-seach*; African *zeze*; Russian *gussli*; Arabian *santir-cymbalo*; Magyar *clavicimbali*; Moorish *knitra*; Burnese *saun*; Hindostanee *shawm* or *choutarra*; Parsee *sitar*; Dutch *cytar*; German *zither*; early English *gittern* or *guitar*; modern Egyptian *gyltarrah carbaryah*; Nubian *kissar* or *kinnor*; Finnish *kantele*; Chinese *san-heen* or *yang-kin*; Japanese *samsien*; and in Syriac it is also alluded to generically as *kine*, meaning an article of luxury. It has been classified, also, in the tamboura and trigon families, as *minnim* was used by the Hebrews as a generic term, and *kithara* by the Greeks. This habit of ancient writers gives one a merely speculative idea of any stringed instrument to which they referred. The oldest of the various sculptures, bas-reliefs, and paintings found in Eastern tombs and the most ancient writings tend to confirm the idea that it was even more of a custom then than now to classify musical instruments. It is also as true that from the earliest record of the existence of stringed instruments most of their variations, from the most primitive to the highest types, were known at one and the same time were all zithers or cithars, and that cithara, harp, lyre, lute, and guitar were used as relative terms. In the tomb of Beni Hassan on the eastern bank of the Nile, in the tomb of Rameses III, dating from 1200 B. C., and the tomb of Osmandyas, near Thebes, of 2000 B. C., remains have been found showing numerous strings, and the sackbut was found under the ashes of Herculaneum. Sanskrit mentions a bow that may have been either a zither or a harp; the Scandinavian Skalds say that Odin played on the *nikarr*; the Nibelungenlied tells of Volker using the bow as well as a sword. The manuscripts saved from the monastery of St. Blasius, in the Black Forest, show some drawings of square and round and Pandean-pipe-shaped frames called *citole*, *nabium*, and *psalterium*. These manuscripts describe the *fithele* of Germany of the ninth century as having no bridge, and the neck not extending beyond the sounding box, and call the *rota* of the trigon family a cithara *Teutonica*. The *rota* was also called a *crudh*, and the Irish *cruit*, or harp, of Galway is inscribed “*Ego sum regina citharum*,” and was played with pointed finger-nails for plectrum, suggesting those of the scholar of China, where no slave and only the scholar may play the cithara. From the eighth century the cithara was always glossed by “*Crot*.” Apollus and Servius describe the zither in describing the lyre. Early Greek writers usually mention the *kithara*, until Lucian describes the lyre as “horned like the stag.” When they did use the word *lyre*, “*cithara*” or “*phorminx*” was added explanatorily. The lyre was but an adaptation of the *testudo*, *sinew*, *chellys*, and curved horn *tuboe* of the savage.

Mere speech, as a means of expression, still remains but a Babylonian confusion, leading to misunderstanding. As music is but the revelation of the innermost heart and truest character of mankind, and is most universally understood, so the zither and its variations suggest persuasively and logically the development of methods in the expression of true feeling, and each modification an advancement in perception and cul-

tivation. It is impossible to know, as yet, whether the first aspirations of men were of martial, religious, or pastoral spirit, or whether the primitive zither was the bow of war touched to the joyful song of victory, or twanged as a monochord in religious invocation or poetic thought. The monosyllabic peoples once knew all the arts of civilization. Only a musical truth could attest that a tone would be the result of such use of one string or sounded shell or reed. A further knowledge of the effects of tension by the pressure of the fingers would naturally suggest other notes from one string and lead to other strings and complexity. The tetrachord followed, and has been attributed to Thoth, Nareda, Fohi, and, by Homer, to Hermes. The fourth tone is said by Macrobius to have been added by the Muses to represent the seasons. Diodorus credits the fifth to Orpheus, the sixth to Linus, and the heptachord to Thamyras. Terpander of Antissa, who was the pupil of Lasus, about 546 B. C., was a scientific experimenter who first used the octachord, then omitted the eighth and used the Phrygian system. Pythagoras of Samos, was the mathematical author of the octochordum, asserting the tetrad, or number four, to be a perfect combination, comprehending all proportions. The octachord continued through Pindar's time, and Suidas says that Timotheus of Miletus invented the eleventh tone during the time of Sappho, Anacreon, and Pericles, when the barbiton and magadis were known to have been in use. The magadis and sackbut of Daniel have been said to have been zithers. In the ninety-second Psalm David speaks of the psaltery, the instrument of ten strings, like the tenor zither, and adds "a harp with solemn sound." Elsewhere he speaks of "propheying on the harp," proving his artistic appreciation of the difference between the tender color and charm of the zither harp and the deeper tone of the larger harp, shaped like an ear and dedicated to the ear of Apollo. The smaller harp was the more portable instrument, and was rested upon the Shemith of the temple, or upon the knees of the Phrygians or Greeks, and may have been the instrument carried by the Pelasgoi. Notation establishes the similarity between the kissar of the

Nubian and the cithara or lyre of the Assyrian. Assyrian sculpture gives it tassels like the harp; and bas-reliefs from the Tigris and the mounds of Nimrod resemble the alta or zither harp of to-day in contour. The Greeks reserved the zither for feminine use, and the later lyre became the instrument to accompany male voices.

Sophocles's remark regarding the origin of the trigon readily suggests the difference in the musical methods of the Egyptians and the Phrygians. Modifications were made, abandoned, and revived, as cultivation chose or rejected the pentatonic or diatonic systems. The grace-loving and refined Greeks were dominated by the intellect. Their decline rejected again the seldom-mentioned kinyra, and the nobler diatonic methods of Pythagoras and the enharmonic gave place to the chromatic scale of Aristoxenes. The more conservative people retained the pentatonic. Traces of the Phrygian influence, mentioned in the tenth book of Strabo, remain in the augmented thirds of Scotch music, and it was characteristic of the Mazathan Aztecs and the Peruvians. The old Persian rebec was closely allied to the Streichzither, and the manuscripts of St. Blasius show the principle of transition in the horizontal plank and upright post in the trigon family, from the zither to the greater harp. The lyre was but a modification of the zither, as the bijuga chitarrone was the first suggestion of the patent head which is the latest edition to the present zither, while that still retains the adjuncts of bow and plectra, from which have been developed the lute, viol, and clarichordum, including the product of later complex civilization—the pianoforte, whose highest type, the grand piano, shows preference, as against the upright, of the horizontal trapezium of the most ancient of early days—the family of citharum.

The first writers for the zither were the Arabs in Persia, in entablature. Modern composers are Umlauf, of Vienna, Grassman, of Frankfort, and Hart and Son, of London. Zither clubs have been formed in recent years, since the revived popularity of the instrument, the Arion zither, manufactured by Schunda, of Buda Pesth, being the choice of most players.

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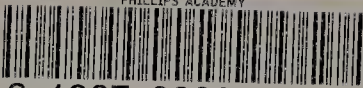
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